We have experience in training the unemployed and in training for new industries. The instruction may be given by our regular teachers, or we may employ teachers from industry. We provide the latter teacher training through our supervisory staffs.

We do not have a good system of followup on our dropouts. Many who drop out get jobs and return to our schools for evening instruction. Some failures are due to inability to read or to handle mathematics, and in some of these instances, dropouts return to the sending school for more instruction, even though we do provide remedial work in subjects such as reading and mathematics.

Our graduate surveys provide a measure of our performance, and we learn from them what needs strengthening and what changes should be made. We plan to close out programs that become outmoded or obsolete. New programs are carefully considered by curriculum and craft committees and must be approved by the State Board of Education.

Teacher Training for Vocational-Technical Schools

An important aspect of our program is teacher training. Each new instructor is urged to matriculate in a bachelor's degree program at one of several state colleges. Basic instructor training, required for certification, is given by members of our central office staff, who are affiliated members of the college faculty. More than one-half of the teachers in our schools have at least the bachelor's degree.

Graduate programs are provided at several state colleges and the state university. Because all of our administrators are promoted from within the ranks, our people are encouraged to take advanced degrees. Our directors are required to have a bachelor's degree plus 30 semester hours. Two of our present directors are graduates of our schools who have gone on to get their bachelor's and master's degrees, and in one case, the doctorate.

Evening School and Adult Programs

A most important part of our operation is our evening school adult program, which is operated in every school. The program is flexible, and new courses requested by unions or others can be started promptly. When programs are large enough, they are supervised by assistant directors. In other cases, they are supervised by day school instructors, who serve on a per diem basis. Before a class is started, we must be assured that it will have an enrollment of 15 students. If the average daily attendance falls below 10 and there are no mitigating circumstances, the class is closed.

Working closely with the State Labor Department Apprenticeship Division, we provide technical and related instruction for apprentices in industry. In each one of our vocational-technical schools we have provided a special classroom for this activity. These classes, known as PTX (part-time extension), are usually in the evening, although some of them, where the employer sends the apprentice for 4 or 8 hours and pays him, are in the daytime.

As a part of our trade and industrial education program, we maintain a staff of four people to conduct supervisory training in industries. These programs are provided in the plants and are usually held on company time. They include such courses as quality control, human relations, job simplification, and job instructor training. This service is in considerable demand. The general idea is that we train certain designated people who in turn can train others. In this way, the program can fan out to cover a large number of people. The companies that we serve pay the cost of travel and clerical service incidental to the classes.

We conduct also a fireman training program for the fire departments of the state. A full-time man, a former battalion chief of one of our large cities, supervises the program, and he employs other instructors to conduct regional training schools for local departments. We make arrangements with the University of Connecticut to conduct a fire college each year, which involves fire chiefs, fire marshals, and other top administrative officers. In the program we have investigative officers, fire insurance officials, experts in arson, and others who conduct a series of lectures for administrative officials.

Another service, provided for the public schools of the state, is a program for school custodians, in which instruction is given on the care and maintenance of public property. Instructors in the program are our own vocational-technical school staff (carpenters, electricians, and plumbers), as well as experienced custodial supervisors and representatives of companies manufacturing cleaning fluids, pneumatic systems, and the like. This program is offered during vacation periods and consists of four courses which are progressive in character and operate for approximately 1 week each.

It should be noted that, because all of these programs are state operated, considerable flexibility is present. Transfer of personnel and use of our state-owned buildings make it easy to determine the need for a program and to start it without undue delay. Approval of local boards and local superintendents is not required, and there are no geographical limitations resulting in questions as to who pays tuition and other costs.

The Technical Institute Program

In 1956 and 1957 we promoted a research study on the "Need for Technicians in Connecticut." The study was prepared by our Department and a committee from Connecticut industry; and the interviewing was done by personnel from industry. The results were reported in "Bulletin No. 82, State Department of Education."

As a result of this study, which indicated the need for technicians, the State Board requested from the Legislature funds, raised by bond issues, for four technical institutes.

The technical institute is a two-year postsecondary school emphasizing mathematics and science; it is intended to train engineering aides who work under the direction of a graduate engineer. Graduates occupy such jobs as design draftsmen, test technicians, quality control technicians, sales engineers, methods engineers, and a host of similar assignments.

The Legislature granted funds for institutes at Hartford, Norwalk, Waterbury, and Norwich. The Hartford State Technical Institute has been in existence since 1946. It operated in temporary quarters until 1960, when it moved into a new building especially designed for it. The Norwalk State Technical Institute started operation in September 1962. Construction of both the Norwich Institute and the Waterbury Institute was started in June 1962, and these institutes will be in operation in the fall of 1963.

The Hartford State Technical Institute is ECPD approved (Engineers' Council for Professional Development). We expect to request approval for the additional institutes when they have met the requirement (5 years) for ECPD approval.

The State Board of Education voted in May 1962 to grant associate degrees in applied science to the graduates of the state technical institutes.

In the development of these institutes we relied heavily on citizens' consulting committees and subcommittees, similar to those used in establishing vocational-technical schools. They suggested the curricula, course names and descriptions, sites, and the general layout of the buildings and laboratories. Their counsel was of incalculable value in the development of these institutions.

In the spring of the year 1962 we set up a new statewide Consulting Committee on Industrial and Technical Education composed of top-level people from industry, labor, education, and the general public. This committee is advisory to the State Director, the Commissioner of Education, and the State Board.

The programs offered at the Hartford Institute are mechanical technology with a metallurgical option, electrical technology with an electronics option, tool technology, and civil technology. In September 1963 nuclear technology and data processing will be offered. In the above-mentioned course in mechanical technology, an option is offered in the second year whereby the student may concentrate on metallurgy.

The programs offered at Norwalk Institute are electrical technology with an electronics option, mechanical technology with a metallurgical option, tool technology, and industrial chemistry.

The Norwich and Waterbury Institutes will offer the basic technologies of mechanical, electrical, and tool technology, and probably industrial chemistry.

Technical institute day students pay tuition of $100 a year, and evening students pay $5 per course.

Evening Technical Institute Programs

Although the day programs of instruction in both the vocational-technical schools and the technical institutes are of primary importance, the evening school programs of adult education have special significance. These evening programs provide instruction to persons already employed who come to our schools for the purpose of upgrading their skills and adding to their technical knowledge. In addition, it is possible for an evening school student to qualify in about 5 years for a diploma from a technical institute. The evening schools serve more than twice as many students as the day schools.

Teacher Training for Technical Institutes

All teachers in the technical institutes must have a degree in engineering, science, or mathematics, two courses in professional preparation for teaching, and 3 years' experience in industry. Senior instructors and department heads must have also 4 years of successful teaching experience in a technical institute. Directors and assistant directors must have the degree, 30 semester hours of professional training, and 5 years of teaching in an industrial or technical institute.

Summary

Connecticut's modern vocational-technical schools have developed from the old-time trade school.

The technical institute program has been a logical and natural development growing out of the needs of industry.

The findings of a survey of the graduates of the technical institute in Hartford made in 1961 support the opinion that the technical institute is a proper institution for Connecticut.

Consulting committees of interested and competent citizens have been a key factor in the development of our program of trade and industrial education.

Operation of the trade and industrial program directly by the state is desirable for the following reasons:

1. Policies and procedures can be determined at a central source.
2. There are no geographical limitations.
3. Particular programs can be decided upon and operation begun quickly without waiting for local boards, superintendents, or others to make up their minds.
4. When the trade and industrial program is a part of a regular school, academic-minded administrators neglect the program in budgets, personnel, and other parts of the operation.

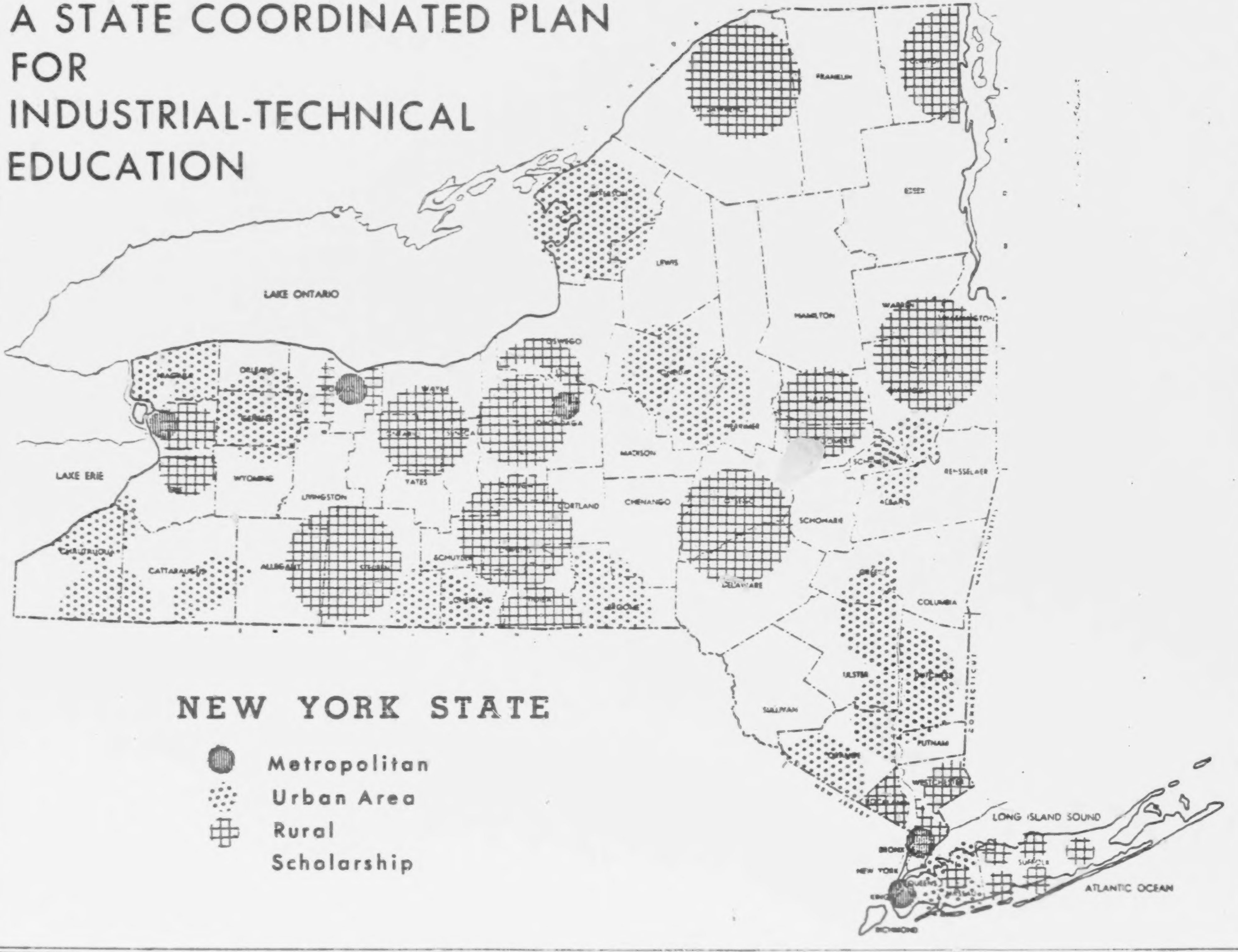
5. A statewide system makes it easier to transfer personnel to points where they are needed.

6. Individuals who are potential leaders or directors can be identified and given early responsibility. *All of our administrators are products of our system.*

7. A large area can be covered efficiently by concentrating adequate facilities in one place, thus eliminating the necessity to duplicate equipment.

8. It is difficult, if not impossible, to get local boards to provide needed buildings and facilities, and in some cases, in our experience, adequate maintenance of the buildings and facilities.

A STATE COORDINATED PLAN FOR INDUSTRIAL-TECHNICAL EDUCATION


NEW YORK STATE
● Metropolitan
⁘ Urban Area
⊞ Rural
Scholarship
LAKE ONTARIO
LAKE ERIE
FRANKLIN
ESSEX
LEWIS
HAMILTON
WARREN
WASHINGTON
OSWEGO
ORLEANS
WAYNE
ONONDAGA
MADISON
WYOMING
LIVINGSTON
YATES
CORTLAND
CHENANGO
OTSEGO
SCHOHARIE
RENSSELAER
ALBANY
CATTARAUGUS
ALLEGANY
STEUBEN
SCHUYLER
CHEMUNG
BROOME
DELAWARE
COLUMBIA
ULSTER
SULLIVAN
PUTNAM
CONNECTICUT
LONG ISLAND SOUND
BRONX
NEW YORK
RICHMOND
SUFFOLK
ATLANTIC OCEAN

VII. A State-Coordinated Plan to Modernize and Extend Industrial-Technical Education to Meet the Demands of the 1960's in New York[1]

BY THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT

Effective utilization of manpower resources is essential to the industrial and economic position of the state. The new manpower skills involved in automation, the upgrading and updating of skills because of changes in technology, the redistribution of employment due to relocation of industries and the special manpower requirements for national defense, all tend to create circumstances which adversely affect the economic well-being of New York State and its citizens.

A number of other factors are adding to the complexity of the problem. Uneducated and unskilled non-English speaking people are swelling the numbers of unemployed in the large metropolitan centers. Continuing large numbers of high school graduates and dropouts, similarly unemployable, are entering the labor market. Sharp changes in the distribution of age groups and the increasing proportion of women in the work force create additional difficulties in fulfilling the skill demands of our economy.

Industrial-Technical Training Is an Economic Resource

A comprehensive statewide system of industrial-technical education for secondary school youth, out-of-school youth, and adults can meet the demands of industry for technicians and skilled craftsmen in the decade ahead. With appropriate cooperation of the industrial, labor, and governmental agencies concerned, and with manpower planning in accordance with technological developments and expansion, a comprehensive system of industrial-technical education becomes an economic resource which can insure the continuing industrial leadership of the state, hold and attract industry, and foster the economic well-being of its citizens.

The State Education Department with the cooperation and advice of local school leaders and the State Departments of Labor and Social Welfare has been developing a long-range four-point program of state and local action. Further consultations with representatives of the State Department of Commerce, industry, labor, and other affected groups have been scheduled for an early date.

Briefly stated, the plan is as follows:

Part I. The Metropolitan Plan — to upgrade and modernize existing industrial-technical education facilities in the five largest cities. The principal needs in New York, Buffalo, Rochester, Syracuse, and Yonkers lie in the direction of (a) new curriculums to replace those which do not provide reasonable employment possibilities, (b) revision of those curriculums which are essential to the economy of the state, but which have not kept pace with industrial change, (c) modernization of shop and laboratory space, and (d) replacement of outmoded and otherwise unuseable equipment.

These improvements will provide a revitalized, refurbished program of industrial-technical education for approximately 60,000 secondary school students and 75,000 out-of-school youth and adults, consistent with the economic needs of the state and the individual needs of the people concerned.

Part II. The Urban Area Plan—to expand industrial-technical education programs in smaller cities to include suburban school districts in contiguous areas. Within appropriate geographic limits determined by the density of the school population, small city school districts can enlarge their programs to serve the needs of the surrounding suburban area. This will require expansion of existing buildings in some instances, and in others building completely new facilities and providing new equipment.

This phase of the coordinated plan will establish 22 metropolitan area programs and serve approximately 31,000 secondary school youth as well as 40,000 out-of-school youth and adults in programs of retraining, occupational upgrading, preemployment training and related instruction for apprentices.

---

[1] The plan is under consideration by the State Legislature.

Current data indicated that the available secondary school population would justify establishment of urban area programs in areas in and around Mepham (Nassau), Niagara Falls, Poughkeepsie, Rome, Schenectady, Troy, Utica, Watertown, Albany, Binghamton, Dunkirk, Elmira, Floral Park, Jamestown, Kingston, Olean, Batavia, Lawrence, East Meadow, Levittown, Corning, and Lockport.

Part III. The Rural Cooperative Area Plan—to establish shop centers to provide industrial-technical education for students disadvantaged on the basis of their geographic locations. Geographic centers have been identified which could function effectively as instructional centers to serve approximately 600 day school students each, with core industrial-technical curriculums in 7 to 10 trade or technical subject fields. Each center would serve approximately a 20-mile radius and, as necessary, permit rural youth to attend their own home district schools for portions of their secondary education other than shop or laboratory courses.

Achievement of this phase of the coordinated plan requires constructing and equipping the shop centers and will serve a total of 36,000 secondary school youth and 40,000 adults. There are approximately 26 centers tentatively identified as rural cooperative areas, including Bay Shore, North Syracuse, Erie County District No. 1, Erie County District No. 2, Glens Falls, Hornell, Huntington, Ithaca, Johnstown, Massena-Potsdam, Middletown, Phelps, Oneonta, Bellport, Plattsburgh, Riverhead, Rockland County, Valhalla, Newburgh, Centereach, East Rochester, Spencerport, Auburn, Owego, Peekskill, Roslyn. See map on page 56.

Part IV. Tuition Payments for Rural Youth—to permit youth, not otherwise served, to participate in a suitable program established under one of the preceding plans. A considerable number of students are located in rural areas outside the range of a cooperative area school or an urban industrial-technical program. Equal opportunity to acquire industrial skill training can be achieved for these rural youth in any one of the three plans described previously through the provisions of existing legislation.

Currently, a pupil residing in a district wherein high school courses are offered, but no vocational program is available, may attend any other school within the state in which vocational courses are available, and the tuition charged to the district in which the pupil resides, except however, the cost of transportation need not be paid by such district. This must be for full-time vocational courses, not merely isolated subjects.

This phase of the plan would provide educational opportunities for approximately 6,000 rural youth who would make a greater contribution to the state's short supply of skilled and trained manpower. The total plan should be restudied when area facilities are established. The number of interested students outside the range of area facilities may warrant some type of program of "Educational Grants."

Finance and Administration

The four-part plan for industrial-technical education is capable of completion within a ten-year period. Implementation of all portions of the plan will require approximately $120 million. Funds for the first two years of the plan will be required principally for refurbishment and modernization of equipment in existing buildings, in the amount of approximately $5 million. Thereafter, for the remaining eight years of the plan, $12 to $15 million will be required annually.

Responsibility for administration, staffing, and operation will be vested in local boards of education. Supporting legislation will be required to permit the complete development of the plan.

Summary

The plan when implemented will:

1. Provide opportunities for basic skill development for secondary-school youth in every location in the state in order to prepare for the industrial needs of tomorrow, wherever and whenever they occur.

2. Provide preparatory training opportunities for school dropouts and unemployable high school graduates, consistent with the emerging skill demands of the economy.

3. Offer retraining opportunities to the unemployed in the economically depressed areas for new skill demands of existing employment opportunities.

4. Provide training opportunities which will reduce the number of unemployable in the non-English speaking population, as well as other adults without marketable skills.

5. Provide upgraded and updated training for employed industrial workers to meet the increasing skill demands of industry.

6. Permit older workers whose skills are becoming obsolete to obtain skills necessary to the new industrial requirements.

7. Expand and strengthen the instructional services available to apprentices in the skilled crafts in order to meet existing shortages.

VIII. Vocational and Technical Education in Pennsylvania

By Edwin L. Rumpf[1]

Introduction

This report deals primarily with vocational and technical education in Pennsylvania conducted under the auspices of the State Board for Vocational Education and supported by local, state, and federal funds. Only a brief reference is made to the scope and nature of vocational education programs conducted by agencies other than the public schools.

Some background information is first presented to help the reader understand more clearly the program that exists today.

Certain aspects of vocational and technical education in Pennsylvania's public schools are reviewed. These include the organization of the program and how it is implemented, what services are being rendered, special features that seem worthy of treatment, and vocational needs related to groups that might be affected.

An attempt is made to analyze certain factors that have had an impact on the growth and development of vocational and technical education in Pennsylvania.

Finally, the writer attempts to forecast what the future may hold for vocational and technical education in Pennsylvania.

Background Information

The Commonwealth of Pennsylvania gave early recognition to the importance of industrial education when it passed the General Assembly Act of 1883. Predating the Smith-Hughes Act by 34 years, this legislation authorized the second-class cities to establish and maintain schools for instruction in the "mechanic arts and kindred subjects." Related subjects were taught as early as 1885 in the Philadelphia Manual Training School where, it is reported, "The whole boy is put to school," that "he learns by doing" for "the education of all the faculties."

In 1900 mechanical drawing was taught in 34 public school districts. In 1904 an agricultural instructor was employed by the Board of Education for the public high school in Waterford. The School Code of 1911 directed that an assistant state superintendent of industrial education be appointed, as well as an expert in drawing. Subsidized vocational industrial education began in 1913 with the passage of the Showalter Act. In the same year the first vocational homemaking program was established. Pennsylvania was one of the first states to take advantage of the Smith-Hughes Act, passed in 1917, and the stimulatory effect of this and other federal acts over the years has been remarkable.

The contribution made by vocational and technical education to Pennsylvania over the years has been of no little significance. The usual programs of agricultural education, business education, distributive education, homemaking education, and industrial education have been offered. In addition, special educational services dealing with the rehabilitation of veterans and civilians, war defense and war training programs, veterans' training, public service occupations, practical nursing, and technical education have been given as need for these became manifest.

During the war emergency the vocational educational program, like some sleeping giant, became aroused and made a monumental contribution. It showed what it could do. Over 600,000 men and women in Pennsylvania were trained in war industry occupations, and another 94,000 were given supervisory training. Motivated by the exigencies of the times, all people cooperated and combined their efforts to utilize and exploit the possibilities of vocational education to the fullest. Then, the emergency having passed, vocational education seemed to have lost some of its luster. Like the forgotten war hero of yesteryear, who was honored by the "ticker tape" parade down Broadway, so vocational education came to be viewed in a dimmer light. Few today realize the great contribution that vocational and technical education can make to our youth and adults, to our economy, and to our nation during any period, whether an emergency exists or not.

---

[1] Director, Bureau of Curriculum Administration, and State Director of Vocational Education.

Vocational and Technical Education in Pennsylvania Today

Today vocational and technical education in the public schools encompasses all of the reimbursable programs conducted under the provisions of the Smith-Hughes, the George-Barden, the Area Redevelopment, and the Manpower Development and Training Acts, at the federal level, together with state laws required to make the administration and operation of these programs legal.

The entire program is operated under the State Board for Vocational Education in accordance with the Pennsylvania State Plan for Vocational Education mutually agreed to by the United States Office of Education and the State Board for Vocational Education. More than 100,000 youth and adults are served each year at a total expenditure of approximately $10 million of local, state, and federal funds.

ORGANIZATION AND IMPLEMENTATION

Under Pennsylvania law, the State Council of Education functions also as the State Board for Vocational Education. It consists of the State Superintendent of Public Instruction, who serves as its executive officer, and nine other members, all appointed by the Governor.

In the organizational structure at the state level, two deputy superintendents of equal rank are directly beneath the Superintendent of Public Instruction and above the State Director of Vocational Education. The Deputy Superintendent for Administration is responsible for budget expenditures and personnel administration. The Deputy Superintendent for Curriculum Services administers and supervises the curriculum services. The State Director of Vocational Education, who also serves as the Director of the Bureau of Curriculum Administration, may work through either deputy superintendent, depending upon the nature of the task to be accomplished. Serving in a dual capacity, the State Director has duties and responsibilities beyond the area of vocational and technical education, but for the purpose of this report, only the latter will be included.

Although the State Director is ultimately responsible for the total state vocational and technical education program, many of his duties are delegated to the head state supervisors of the various services. It is through the state supervisors that contact is made with the school districts and that programs are developed, approved, operated, and reimbursed.

Program approval is based on such items as established need for a particular type of vocational and/or technical education, a properly certificated teacher, provision for adequate supervision, submission of a course of study, adequate facilities, provision for necessary equipment and supplies, and action by the local school board to establish the program and maintain its operation. Approval at the state level, once given, is continuous until the operating school board signifies its intention to discontinue the program or the State Board for Vocational Education indicates, through the State Director, that the program is no longer reimbursable because it fails to meet the standards previously agreed upon. Vocational programs are operated in schools representing the various classes of school districts based on population (first, second, third, and fourth class). In a few cases, the operating agency is the county school board where area technical schools have been established.

FINANCING THE PROGRAM

The foundation system of state aid to public schools is used in Pennsylvania. All vocational and technical students are included when the basic or foundation support due any school district is calculated. Since a school district receives this support for its day program regardless of the type of student, this report will be concerned only with those supplementary reimbursements that a school district receives as a result of operating an approved vocational and/or technical education program.

The local support for vocational education comes from the general fund and is derived from taxes levied by the local school board under the powers granted by state law. State support in the form of reimbursements to the local school district is also derived from tax sources and/or federal augmentations.

At the state level, federal augmentations are placed in a federal custodial fund. Transfers from the federal custodial fund to the State Treasury are made only after state and/or local expenditures have been made to support these transfers on a "matching" basis.

Payments to the local school districts operating vocational programs are generally made 1 year in arrears. These payments are based on annual preliminary and final report forms, which certify to the expenditures made by the school district for vocational education in accordance with established laws, regulations, and procedures. Both the regular day and adult programs are reimbursed in this fashion.

Programs for retraining of the unemployed, including practical nurse education and programs operating under the Area Redevelopment Act, are reimbursed 1 month in arrears.

Payments to county boards operating area technical schools are made in advance to cover a six-month period of operation. Advance payments are based on an estimated budget submitted prior to the period that the budget will be in force. The payment for the second six-month period is also estimated, subject to adjustment based on the experience of the first 6 months.

The amount of reimbursement to school districts for operating vocational programs is established by law. In the day program, it is based on an amount payable for each student in average daily membership (ADM). This varies as follows: home economics, $20; agriculture and trade and industry, $35; and distributive education, $50, per ADM. Approved travel of vocational administrators, supervisors, and teachers at the local level is reimbursed at 80 percent of the amount expended. No reimbursement is given for administrators, supervisors, and teachers on the day program other than that indicated above. No program will be approved for reimbursement if the administrator or supervisor in charge is not properly certificated and qualified.

On the adult level, vocational reimbursement is based on the number of hours of teaching. Prior to July 1962, it was 80 percent of the teacher's hourly rate up to a maximum of $2.50 per hour. The state was paying a reimbursement of $2 per hour even though some districts had to pay more than $2.50 per hour to get qualified teachers. Beginning in July 1962, this reimbursement became 80 percent of a maximum of $4 per hour. Reimbursement for supervision of the adult program up to 20 percent of the total amount expended for teachers' salaries may be claimed.

Reimbursement for area technical schools follows the above pattern except that, in addition, an amount equal to $800 multiplied by *the subsidiary account reimbursement fraction* times *the number of teaching units* is also reimbursed. Transportation costs are reimbursed for area technical schools on the same basis as they are for other schools or districts.

Where agreements or contracts have been made with a school district to provide an educational service, such as retraining the unemployed, practical nurse education, or programs under the Area Redevelopment Act, payments are made in terms of the agreement or contract. Usually the school district will furnish the facilities and some of the equipment and will provide supervision. All other items such as the salaries of teachers and clerks, the cost of supplies, and travel costs are reimbursed in full. Equipment purchased by state and federal funds becomes the property of the state. Products resulting from such training programs are turned over to the state for distribution to tax-supported institutions throughout the Commonwealth at no charge.

Experimental programs are financed in a fashion similar to that of retraining.

Teacher education programs are conducted under continuing agreements with several colleges and universities to provide certain vocational teacher education services. The program of vocational teacher education is supported primarily by grants-in-aid of federal and state money. Guidelines for the operation of the program, criteria for the program itself, qualifications for teacher educators, and information of a similar nature are contained in the state plan. Annual budgets are submitted for approval, and reimbursement is made monthly on actual expenditures.

Also included in the teacher education budgets are funds to support personnel in various fields of research, area coordinators of vocational industrial education, and field instructors in distributive education attached to certain institutions. Special research projects conducted by the teacher education institutions are established and supported under separate grants by agreements or contracts.

ADMINISTERING THE PROGRAM

The overall pattern of administration varies from service to service.

Agricultural education has been established primarily in the rural areas. These programs, depending upon size and function, may be headed by one or more teachers serving day students, young farmers, and adults. The teacher's immediate responsibility is to the local school administrator, although he also reports through the Area Supervisor of Agriculture to the Head State Supervisor, who reports to the State Director of Vocational Education.

The distributive education program at the local level is headed by a Coordinator of Distributive Education. This person also reports through the local school administrator to the Head State Supervisor of Distributive Education. In some areas, the field instructors attached to either Temple University or the University of Pittsburgh may give assistance to the program at the local level. In some of the cities, the Coordinator of Distributive Education may report to and work through an intermediate administrator, such as a local Director of Vocational Education.

Homemaking education programs operate in most of the schools in both rural and urban areas. The Area Supervisor, as in the case of agriculture, is the liaison with the Head State Supervisor of Home Economics, who reports to the State Director.

Trade and industrial education programs include practical nursing, retraining the unemployed, area technical training, and programs under the Area Redevelopment Act, in addition to the usual functions that this service performs. At the local level these programs are headed by a Director of Vocational Education or a Supervisor of Industrial Education. The local Director of Vocational Education may also have responsibility for other areas of vocational education. The Area Coordinator of Industrial Education is the liaison between the local school district and the Head State Supervisor of Trade and Industrial Education, who reports directly to the State Director.

Of the field personnel operating for the State Department of Public Instruction, only the agriculture and the home economics supervisors are included as a part of the department administrative staff for budgetary purposes. They come under the supervision of the head state supervisors, and are attached to a number of county offices, depending upon their area of operation. Field instructors in distributive education are attached to universities, but are considered as field staff under the Head State Supervisor of Distributive Education. The area coordinators of industrial education are also attached to universities, but they are considered the field staff of the Head State Supervisor in this service.

Promising Features of Program

Below are some comments pertaining to special features of great promise for the future of vocational and technical education in Pennsylvania, if they are properly exploited.

AREA TECHNICAL SCHOOLS

During the summer of 1960 a comprehensive study was made of the Commonwealth, dealing with business and industrial needs, school facilities, density of population, and related items, in view of preparing a state plan for area technical schools. As a result, a state plan was subsequently prepared and in March 1961 the State Board for Vocational Education approved it. In essence, the plan established 44 administrative units with an ultimate projection of 79 area technical schools, as shown in the accompanying map.

Each area technical school may serve as a "department" of several cooperating schools, or it may offer a complete educational program with vocational and technical education as the principal objective. The area technical school concept involves the "pooling" of pupils, facilities, and resources. Courses offered may be at the technician, trade, or operative level. This makes possible a broader curricular offering for both youth and adults than the traditional type of school organization can afford. If the area school operates in conjunction with other secondary schools, the need for auditorium and gymnasium is eliminated. The building structure becomes quite functional, and initial building costs are reduced.

Under the state plan for area technical schools, administrative units, in some instances, cut across county lines, while in other cases only a portion of a county or a single county may be included. The plan states, "County boundaries will be given consideration. However, service to an area will not be sacrificed in order to maintain the county as an administrative unit."

Although only four area technical schools have been established and are functioning under the state law providing for them, others are seeking approval.

Technical courses are also given in other schools. In the year just completed, almost 5,500 students were enrolled in technical courses in 23 high schools, with 19 giving courses in the day school and 14 offering courses in the adult program.

ADVISORY COMMITTEES

It is mandatory under law that each area technical school have an advisory committee, and it is recommended that each vocational program function with an advisory committee. Only a few vocational programs, however, have such a committee. For the past 2 years, trade and industrial education has had an advisory committee at the state level. Efforts to establish committees in the other services and to establish an overall state vocational education advisory committee, have met with little success.

Several reasons may be given for the failure to maintain active advisory committees. Some people oppose the committees, fearing that they may become too powerful and attempt to establish policy, rather than remain advisory. The committees are not kept informed. Meetings are not made meaningful and purposeful. A committee may be too large and unwieldy. A status committee, rather than a working committee, may have been appointed. Frequently, a committee will lose interest because no procedures have been established for renewing its membership or providing new points of view.

The value of good advisory committees to the continued progress of vocational education is no longer a matter of debate. Where these advisory committees have been organized and have functioned, they have contributed much to the success of the program.

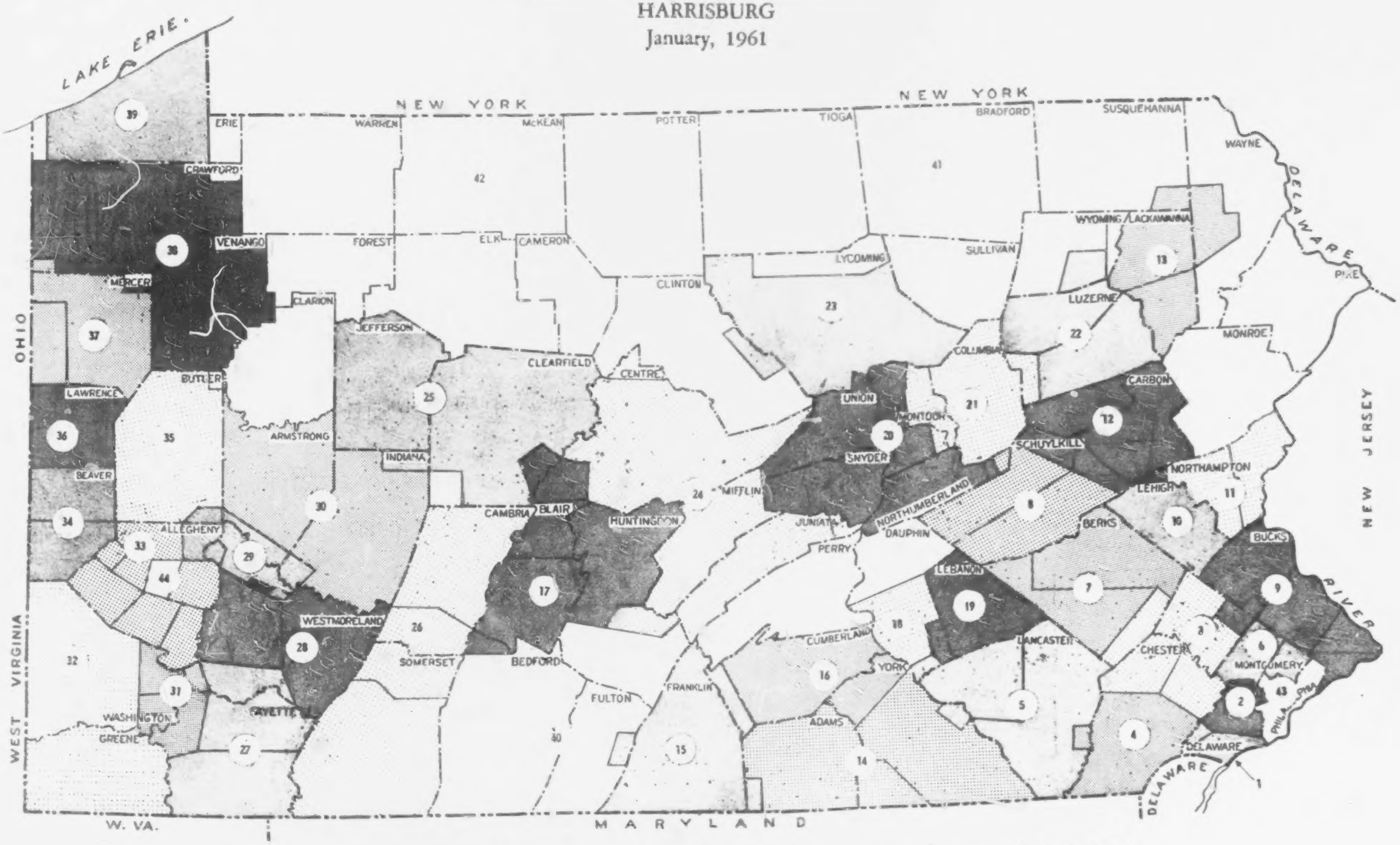
EXPERIMENTAL PROGRAMS

Specific research in agricultural education, home economics education, and trade and industrial education has been made possible by having a research specialist in each of these fields at the Pennsylvania State University. An advisory committee in each field meets periodically to assist in developing and carrying out a plan of research in its area. This program is in its infancy, and its financial support represents about 1 percent of the total expended each year for vocational and technical education.

Experimental programs have been undertaken to determine new direction for vocational and technical education in the future. One such program is to compare the relative potential of secondary school students with that of adults in developing proficiency in data processing and computer programming. Another is to compare the relative success in pursuing a course in electronics of a group coming from the usual college preparatory course and another group having had a course in vocational electricity. A third project compares the results of closed-circuit television teaching with that of the teacher in the classroom. A final example is a program in distributive education that is attempting to utilize the background of a vocational graduate in agriculture to develop salesmen for the rural areas.

A study of trade and industrial education and the retraining program was made in 1961 as a result of the recommendation of the Governor's Committee on Education. The committee also recommended studies of the other fields of vocational education.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF PUBLIC INSTRUCTION
Bureau of Curriculum Administration
HARRISBURG
January, 1961


LAKE ERIE
NEW YORK
NEW YORK
OHIO
WEST VIRGINIA
W. VA.
MARYLAND
NEW JERSEY
DELAWARE
DELAWARE
DELAWARE RIVER
ERIE
CRAWFORD
VENANGO
MERCER
LAWRENCE
BUTLER
BEAVER
ALLEGHENY
WASHINGTON
GREENE
FAYETTE
WESTMORELAND
ARMSTRONG
INDIANA
JEFFERSON
CLARION
FOREST
WARREN
McKEAN
ELK
CAMERON
CLEARFIELD
CENTRE
CLINTON
POTTER
TIOGA
LYCOMING
BRADFORD
SULLIVAN
SUSQUEHANNA
WYOMING
LACKAWANNA
LUZERNE
WAYNE
PIKE
MONROE
COLUMBIA
MONTOUR
UNION
SNYDER
NORTHUMBERLAND
CARBON
SCHUYLKILL
NORTHAMPTON
LEHIGH
BERKS
BUCKS
MONTGOMERY
PHILA.
CHESTER
LANCASTER
LEBANON
DAUPHIN
PERRY
JUNIATA
MIFFLIN
HUNTINGDON
BLAIR
CAMBRIA
SOMERSET
BEDFORD
FULTON
FRANKLIN
CUMBERLAND
YORK
ADAMS
1
2
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44

This map shows a proposed administrative organization for the operation of area technical schools throughout the Commonwealth. These schools will provide occupational opportunities so that high school students and adults may become competent members of our working society.

Unshaded areas do not have the necessary population to support a school. These areas will be served by resident schools or other schools in the Commonwealth.

TRAINING THE UNEMPLOYED

Although the programs for training the unemployed are now authorized under Section 2508.3 of the School Laws of Pennsylvania, 1957, such training has been conducted since 1951. From 1951 through 1961, 127 programs provided training for 14,924 unemployed, including recipients of public assistance. Of these programs, 88 were operated for less than a one-year period, and 40 of these were operated for 3 months or less. The total cost for 10 years of operation was $998,301.66, a cost of $66.82 for each of the 14,924 persons trained.

The objective is to provide brief, intensive vocational training for unemployed and underemployed adults. Training is designed to equip recipients of public assistance and other unemployed with basic skills and technical knowledge required for entrance into a local industry, business, or other type of employment. During the first 7 years the size of the program remained relatively constant with an average annual enrollment of 1,396 and an average cost of $83,000 per year. During the past 3 years the annual enrollment has increased from 1,364 to 3,094, with a corresponding increase in cost from $85,000 to $250,000 per year.

The need for training is determined by the State Employment Service, and programs are initiated cooperatively by representatives of the local school district, the Employment Service, and the Department of Public Instruction. Training is usually conducted in public school facilities, although in-plant training will be approved if it seems more practicable. All programs come under the jurisdiction of vocational educators in the Department of Public Instruction and are under public supervision and control.

Applications for course approval include a proposed budget covering the period of training, a course outline indicating the hours per major unit of instruction, a description of facilities and equipment, and a training schedule. In addition, a letter from the State Employment Service indicating the availability of trainees and employment opportunities and a letter from the County Board of Assistance indicating the availability of trainees must also accompany the training proposal forwarded to the State Department of Public Instruction.

Applications for training are reviewed at the state level by a committee composed of representatives of the State Employment Service, the Department of Labor and Industry, the Department of Commerce, the Bureau of Public Assistance, the Budget Secretary's Office, and the Department of Public Instruction.

When completed and approved, the budget application form constitutes a contract between the local board of school directors and the Department of Public Instruction for the conduct of the program. Courses are limited to a maximum of 6 months' duration for any one trainee, and classes are conducted for a minimum of 30 hours per week. The continued operation of a program is dependent upon placing in jobs at least 60 percent of those completing the course.

Selection of trainees for training and placement on the job after completion of training is the responsibility of the State Employment Service. The conduct of the training is the responsibility of the Department of Public Instruction and its counterpart at the local level.

The program is 100 percent reimbursable from state and federal funds on those items that are reimbursable. In most cases this will cover 90 percent or more of the amount expended by the local school district. About 80 percent of the amount that is paid to the local school districts as reimbursement comes from state funds. Items that are reimbursed include the following: wages and salaries of personnel essential to the conduct of the program, such as supervisors, teachers, clerks, janitors, and repair mechanics; travel expense of personnel on official business; cost of consumable supplies for instruction, office, janitor, and maintenance mechanic; communication charges for postage, telephone, printing, duplicating, and advertising; insurance charges for the protection of plant and equipment, social security, workmen's compensation, and retirement funds; overhead charges of five cents per trainee hour of instruction; and freight charges for the transportation of finished products to the disposal point for distribution to charitable or state institutions.

Sound administrative and educational practices must be followed if the training program is to be successful. Establishment of training needs and the determination of available trainees are the responsibility of the State Employment Service. The organization of a responsible local advisory committee to represent the interests of the community and potential trainees in developing a sound training proposal is most important. The committee advises with officials of the local school district and the employment office. A course outline to provide intensive training for immediate placement on a job will be developed more easily if specific training needs are determined in consultation with personnel directors and responsible plant officials. In retraining programs, educators must think in terms of developing a single skill rather than broad areas of skills. Training programs must be developed on the basis of need rather than on the basis of existing facilities. A realistic budget must be developed, and the entire operation must be justifiable.

Selection of the instructional staff is very important, and since the occupational areas for which training is needed are not usually represented in the school vocational program, it may be necessary to seek instructors from those in the industry or occupation to be served.

There is no substitute for good supervision, and in most instances, supervisors must be developed. Retired local vocational supervisors and directors have been found to serve capably.

Finally, adequate financial and statistical records must be maintained in order to justify programs already completed and to support proposals for future programs.

Area Redevelopment Programs

Since the enactment of the Area Redevelopment Act, area redevelopment projects amounting to over $200,000 have been developed and approved in Pennsylvania — more than in any other state. This may be partly because of the large areas of substantial and persistent labor surplus in Pennsylvania, and partly because of the state's previous experience with retraining under its own program. With 51 of the 67 counties qualifying under this act, the effect of this legislation in the Commonwealth has been tremendous, not only in training but in other respects. Administration and operation of the program under the federal act is somewhat more difficult than that of the state retraining program because more governmental agencies are involved and because all proposals must be forwarded for approval at the federal level. Continued operation of the program will permit a more accurate evaluation.

Significant State Legislation

In 1961 the State Legislature authorized the Department of Public Instruction to establish, operate, and maintain a program of vocational education in any area of the Commonwealth where, in the opinion of the State Superintendent of Public Instruction, the vocational education needs of youth and adults are not being met. Although money was not appropriated to implement this act, the law has great possibilities, if and when money becomes available.

Another act, also passed in 1961, permits boards of second- and/or third-class districts, presently operating approved vocational programs, to join with county school boards for the purpose of establishing area technical schools.

Needs

In this section, some appraisal will be made of the program of vocational education in Pennsylvania and how well it is meeting the needs.

One measure of the efficiency of the total educational program is the dropout rate. A recent report released by the Bureau of Research, Department of Public Instruction, reveals that the dropout rate for grades 7 through 12 during 1960-61 was 3.7 percent in contrast to 5.0 percent 4 years earlier. This is an improvement, but no concentrated statewide effort is being directed to reduce the rate further. Philadelphia has an occupationally oriented, nonreimbursable program enrolling about 900 students each year, which is aimed at the school dropout. Results to date have been very gratifying. Much more, however, needs to be done statewide in this respect.

The following excerpts are appraisals taken from the Educational Research Monograph No. 3, *The Chance to Learn*, published under the direction of the Governor's Committee on Education, October 1960.

"This study reveals that the biggest deficiency in curricular offerings in Pennsylvania is in an area that many educators outside of the immediate field neglect— vocational education, particularly trade and industrial education."

"With the exception of the largest senior high schools, our high schools as a group failed to present a vocational education adequate to the need."

"With an estimated 65 to 70 percent of our secondary school graduates going immediately to work in business and industry (Educational Research Monograph, No. 1) the importance of vocational education is obvious."

"The number of pupils enrolled in all kinds of state-approved vocational courses expressed as the percentage of the total enrollment in grades 10 through 12 (350,000 pupils in 1958-59) is given below. The data were taken from reports to the Federal Government by the Department of Public Instruction:

Agriculture	3 percent
Distributive Education	less than 1 percent
Home Economics	4 percent
Trade and Industrial	7 percent
Business Education	22 percent."

The foregoing excerpts indicate quite accurately the scope of the vocational education program at the high school level today. Vocational training in agriculture and home economics comes closer to filling the need than does training in other areas. Distributive education needs vast expansion, and trade and industrial education needs to serve three times the present number in order to achieve its proper goal.

Young farmer and adult programs in agriculture, adult programs in distributive education, and adult programs in home economics education should be greatly expanded. At the adult level, trade and industrial education should serve from five to seven times the number now enrolled (presently, 21,000) in order to serve those who could profit from such instruction. Lack of funds has prevented an expanded program of training the unemployed needed to meet current demands and to cope with requirements in the immediate future.

If post-high-school training is defined as an educational program that requires high school graduation as a prerequisite, or as a program above the high school level, there is very little of it. But if the term is defined as a program that admits students who have achieved age 18 and can profit by the instruction, then there is much of it, relatively speaking. Under the latter definition, it is estimated that more than 30,000 people are regularly enrolled in post-high-school courses.

During the past year almost 5,500 were enrolled in technical courses offered in the public schools.

Vocational and Technical Education (Other Agencies)

Included here is some indication of the scope of vocational and technical education being conducted by agencies other than the public schools. Primarily, these programs involve adults.

Private Trade Schools

A recent check indicates that 118 private trade schools are approved in Pennsylvania. About 1 year ago, more than 11,000 students were enrolled, and 8,900 graduated during the license year. There were 875 instructors employed. All schools listed, including music, modeling, and dancing schools, have a declared vocational objective in their training programs. The majority of these schools are located in Pittsburgh and Philadelphia. The highest enrollments were in electronics, automotive, drafting, and commercial art courses, in that order.

Pennsylvania State Commonwealth Campus System

This branch campus system provides lower division instruction for students planning to continue their education at the university's main campus, but it also offers full-time, two-year, terminal programs. Most of these terminal programs are technological in content and lead to the associate degree. Approximately 4,000 part-time and evening students attend classes each year at the 13 branch campuses. The full-time student body of a branch campus varies in size from 100 to 1,000, with an average enrollment of 300 to 400. About half of the full-time students are enrolled in two-year, associate-degree curriculums. Currently, more than 1,000 students are enrolled in agriculture, business administration, chemical technology, drafting and design technology, electrical technology, surveying technology, production technology, and food service and housing administration.

Apprenticeships in Industry

It is difficult to ascertain how much training is being done in industry, because reports are incomplete. Many apprentices are never registered, and a great deal of informal training takes place. However, 6 months ago there were almost 7,300 registered apprentices.

An Analysis of the Situation

Certain conditions have prevailed in the Commonwealth that have strongly influenced the progress that has been made in the area of vocational education and training. We will comment upon a few of these conditions.

School District Reorganization

Pennsylvania is in the throes of school district reorganization. Impetus for this action came from legislation recommended by the Governor's Committee on Education. Specifically, the legislation requires that area technical schools must be provided for in county plans submitted as a part of any reorganization.

This new emphasis on the larger administrative unit will probably result in an increased size of many school districts and of some schools. Hence, educational services that were hitherto not practicable because of excessive costs will become possible since the costs can be spread over a greater number of people in the larger unit. Vocational and technical education will be one of the educational services benefited.

Building Costs

A rapidly increasing elementary and secondary school population has made it necessary that school districts build to meet the new demands. This building program has placed a heavy burden on the taxpayer. Hence, those who are kindly inclined toward building for vocational and technical education purposes find it difficult to secure the necessary public support. Only to the extent that this need is generally felt by the public will adequate vocational and technical education facilities be provided. It would appear that a public works program might supply the answer.

Curricular Offerings

The international complex has had its effect on curricular offerings; it has placed a renewed emphasis on such subjects as mathematics, science, and foreign languages. This change in emphasis has not been without its beneficial effects, but an unfortunate byproduct has been the neglect of the vocational program. After almost 5 years of the post-Sputnik era, however, the educational climate is again becoming favorable to vocational and technical education. A better and stronger program will emerge.

Financial Effort and Support

Increased building costs, increased salaries for professional personnel, and the general increase in costs across the board have strained the financial efforts of the majority of school districts. Few districts have been able to make the necessary effort, beyond the support of the usual school operations, to expand sufficiently the vocational offerings. Furthermore, the reimbursement for vocational and technical education has not been increased for almost 20 years. A readjustment in reimbursement is long overdue.

Attitude of School Administrators

Vocational and technical education is inexorably intertwined with the total educational program. This is as it should be. No part of the educational program should be more important than the whole. Yet, there needs to be a greater understanding and appreciation on the part of the general school administrator of the contribution that vocational and technical education can make to the overall program. Likewise, it is incumbent upon the vocational administrator to understand and appreciate just how vocational and technical education fits into the total educational picture. All too often, the progress and direction of the vocational program is determined by individuals in authority who have no real knowledge of or interest in the program, or, on the other hand, by individuals who know vocational education but do not see its relation to the whole. Greater utilization of advisory committees, which are mandatory for area technical schools in Pennsylvania, should help to insure greater understanding and better balanced programs.

GUIDANCE

Guidance personnel and school counselors have been at a disadvantage because of heavy work loads. Many have felt more secure in guiding college-bound students than the vocationally inclined students. From their own experience and training most counselors know the college world better than they do the vocational world. Furthermore, parents are likely to insist that their children be guided into college. In some cases the student who possesses above-average ability has been "guided out" of the vocational and technical education program, regardless of his interest in a technical field requiring as much ability on his part as a formal college program. Fortunately, guidance personnel are improving in numbers and quality, and better guidance information is becoming available to them.

SEGMENTED VOCATIONAL EDUCATION

Not all of the ills that have befallen vocational education stem from causes outside of this field. Much of the difficulty is directly attributable to the people who are most closely associated with the program. Traditionally, vocational education has been segmented into the various services. There has been little crossover from one service area to another in meeting the needs of the individual student. Yet, an analysis of the needs of the student may indicate that a combination of two or more services may be required to meet his needs. Much remains to be done in this respect. Vocational and technical education will never attain its greatest potential until the needs of each student are fully analyzed and an educational program is developed for him, based on the possible contributions of all the educational services, vocational and otherwise, that can best help him attain maximum self-realization.

COOPERATION OF VARIOUS STATE AGENCIES

Educators must come to the complete realization that they do not and cannot operate in a vacuum. There must be greater cooperation with other agencies at all levels — local, state, and federal — if the greatest good for the greatest number is to be achieved. Experience in the Commonwealth of Pennsylvania under the State Program of Retraining and under the Area Redevelopment Act has shown that such cooperation is not only desirable but possible. Greater strides in this direction will be made under the impact of the Manpower Development and Training Act, which is now being implemented.

What of the Future?

It is most difficult to predict precisely what course the program of vocational and technical education will take in the future because of the many intangibles that are involved. But despite the dangers that are inherent in prognostication, the following statements are made with some feeling of confidence.

Vocational and technical education in Pennsylvania is on the threshold of a period of great growth and progress. There will be greater acceptance of the program by more and more people.

The indications are that there will be increased support of the program at both the local and state level.

Educators in the vocational field will tend to work "across the board" in meeting the needs of the youth and adults to be served.

Business education (office occupations), although not presently reimbursed from either state or federal funds, will assume a position of increasing importance in the field of vocational education. Programs in this area are being subsidized under the State Retraining Plan, and this practice is apt to be extended under the Manpower Development and Training Act.

Technical education will increase at the post-high-school level. Technical education may also be offered in the state colleges of the Commonwealth and be reimbursed from both state and federal sources.

Guidance and counseling services will become more realistic and will result in the enrollment of more students of high quality in vocational education and in better service to those of lesser abilities.

In addition to increased support for vocational and technical education programs, greater incentive to establish and maintain such programs will be created by providing for more reimbursement payments in advance. Advance payments will have a stimulatory effect.

Advisory committees will increase in numbers and in importance. These committees are essential in order to insure that the needs of those to be served will be met.

Finally, more area technical schools will be built. School district reorganization will make financing more feasible. Funds for building purposes may become available from both state and federal sources. This will encourage school districts to redirect some of their resources into technical schools. Pressures will build up to use technical school facilities for retraining the unemployed and underemployed under the new federal retraining acts. All of these will combine to make many area technical schools a reality in the next few years.

PRECEDING PAGE BLANK-NOT FILMED

IX. Vocational and Related Education in Florida

BY G. W. NEUBAUER[1]

Population Concentration and Distribution of the Labor Force

Florida has 67 counties. The northern half of the counties contains approximately 26 percent of the population, the central one-third contains 40 percent, and the southern one-sixth contains 34 percent.

Most industrial and technical development is concentrated along the two coasts of central and southern Florida and in certain interior counties in the center of the state. However, the eastern and western extremes of the northern section, primarily the Pensacola area and Jacksonville, contain extensive concentrations of industrial and military establishments that require many technical personnel.

As to agriculture, general farming prevails in the northern and western part of the state, citrus production and cattle raising in the central portion, and truck farming and sugar cane growing in the southern portion.

Florida's program of vocational and related education in general reflects its industrial and occupational structure. In 1960 all of the 67 counties supported at least 1 vocational service. Nearly all had agriculture programs; three-fifths had business, distributive, and cooperative education programs; two-thirds had industrial education; and all had home economics education programs.

State Administrative Structure for Vocational and Related Education

The State Board of Education, chaired by the Governor and with the State Superintendent of Public Instruction serving as secretary and executive officer, is also the State Board for Vocational Education. The other members include the Secretary of State, the Attorney General, and the State Treasurer. Through the State Director of Vocational and General Adult Education, the State Board is administratively responsible for the total program of vocational and technical education in the state and for its articulation with other state educational services.

The Division of Vocational and General Adult Education is one of seven divisions in the State Department of Education having the primary purpose of providing consultative services relating to specialized aspects of the educational programs of the respective counties. This division, headed by the State Director, is responsible for administering, coordinating, supervising, and promoting vocational and general adult education in the state, including the preparation of vocational and related education teachers.

The division consists of five sections, each headed by a State Supervisor. These sections include Vocational Agriculture; Vocational Business, Distributive and Cooperative Education; Vocational Home Economics Education; Vocational Industrial Education; and General Adult Education. Of these, Vocational Business Education, Diversified Cooperative Training, and General Adult Education are supported entirely by state and local funds. In addition, a Consultant for Technical Education and a Consultant for Industrial Arts are administratively attached to the Industrial Education section. A Consultant for Business Education, responsible for vocational and general business education, is part of the Business, Distributive, and Cooperative Education section.

Each vocational section has several area supervisors who work under the direction of the section head. These supervisors, through frequent visitations to local centers, supervise program operation, determine adequacy of offerings and facilities, assist in improving instructional effectiveness, and review placement and followup of students and graduates. In addition, they make sure that state and federal funds are spent in conformity with regulations of the State Board and the requirements of the Florida State Plan for Vocational Education; and they recommend schools that meet established standards for reimbursement.

---

[1] Research Specialist, Vocational and Adult Education, Florida State Department of Education.

Local Operational Structure for Vocational and Related Education

The Florida public school system, which includes vocational, general adult, and related education, is a county system. There is no provision for autonomous city organizations or independent school districts. Hence, the responsibility for all educational activities in the respective counties is ultimately lodged in the county superintendent and the county board of public instruction.

The county board consists of five members. One is selected from each of the five county board residence districts into which every county is divided. Although elected from residence districts, the board members are selected by all qualified voters of the county and represent the entire county instead of single districts.

The county superintendent is elected for a four-year term by the qualified voters of the county in 64 of the 67 counties. In the remainder, he is appointed by the county board for a four-year term, which may be renewed indefinitely.

Vocational education and general education are equally important parts of the state's minimum foundation program, passed by the Legislature in 1947 to ensure at least minimum educational opportunities for all Florida children. County educational programs are operated with minimum foundation program units, allocated for different purposes such as instruction, administration, supervision, and student transportation.

The amount of money received by a county from the minimum foundation program is based upon student average daily attendance and the number, rank, and teaching experience of teachers. Rank refers to the professional qualifications of the teacher; for example, the degree he holds, or its equivalent, and the amount of college work completed. The equivalency provision is particularly important to industrial and technical education teachers and to part-time teachers of vocational subjects who frequently have extensive work experience but only a minimum of professional preparation.

Instructional units are granted to the counties on the basis of average daily attendance, which, for vocational courses, is half that required for general education subjects. For example, if the enrollment of a school is large enough to require the maintenance of an average daily attendance of approximately 26 students, a full instructional unit is granted in vocational classes if the instructor maintains a minimum average daily attendance of 13. If enrollment falls below the minimum, the financial value of the unit is prorated. The advantage in favor of vocational courses is allowed in order to compensate for the greater cost in coordinating such courses. It is not intended that county school systems will be supported exclusively from minimum foundation program funds. Each county is expected to contribute substantially more from its own revenues in terms of its resources.

The size of a county's population determines the immediate administrative structure under which the county vocational program operates. The state plan stipulates that counties with a population of 50,000 or more shall appoint a local director of vocational education who will be assisted by appropriate supervisory personnel as program growth requires.

In counties having fewer than 50,000 people but using 8 or more vocational instructional units, a local director may be appointed or a vocational supervisor or coordinator may be designated to act in that capacity. In counties using fewer than eight vocational units of all types, a vocational teacher, supervisor, or coordinator may be assigned to assist the county superintendent in administering the program.

Types of Schools Conducting Vocational and Technical Education Programs

Vocational and technical education in Florida is conducted at a number of instructional levels and in a variety of institutions. The institutions include regular, vocational, vocational-technical, and comprehensive high schools; vocational schools; junior colleges; adult centers; and an area administrative structure.

A comprehensive high school provides preparation for a variety of occupations. For lack of a more explicit definition, a comprehensive high school is one that offers vocational courses in at least three federally reimbursable areas and includes four or more of the following in its curriculum: agriculture, distributive education, cooperative education, home economics, industrial education, and technical education. At present, Florida has 49 comprehensive high schools, but more are under construction or in the planning stage. All but five of the remaining secondary schools are regular high schools that either provide preparation in a number of vocational areas — only one or two of which are federally reimbursable — or make no provision for vocational education.

Four of the remaining five are vocational high schools, and the fifth is a vocational-technical high school. The vocational and vocational-technical high schools are located in Jacksonville, Tampa, and Pensacola — the oldest industrial areas of the state. They were established during the 1940's and early 1950's to prepare non-college-bound youth for business, clerical, and industrial-technical occupations. Although the vocational high school concept has given way to emphasis upon comprehensive high schools, the existing vocational facilities are being continued, at least for the present. The college preparatory and general curricula in the vocational schools are more restricted than similar curricula in comprehensive high schools. Greater emphasis is placed upon occupational preparation, and a more extensive vocational curriculum is provided for youth and adults than is found in all but a few comprehensive high schools. Nevertheless, it is considered more desirable to decentralize vocational education opportunities because students in comprehensive high schools have access to more diversified curricula and activities while learning an occupation.

In addition to regular and comprehensive high schools and vocational and vocational-technical high schools, the state has 17 special vocational schools located in 14 counties. Four of these are single-purpose schools in that they enroll only adults for practical nursing or law enforcement training. A fifth is a publicly supported aviation school offering courses for both high school students and adults. Four of the remaining 12 are adult centers providing preparatory and extension training for out-of-school enrollees only. Vocational courses for high school students in these four counties are included in the curricula of the secondary schools. In the remaining eight, a variety of vocational courses is offered for high school students and adults alike. These eight are located in seven of the more densely populated counties in which industrial education in the high schools is not extensively developed.

All of the schools are under the control of the board of public instruction and the county superintendent of the county in which they are located. One, the Mary Karl Vocational School, is an administrative division of the Daytona Beach Junior College, but it is operated with county funds apart from the junior college budget.

Two of the schools were in operation before the Second World War; they evolved from the "opportunity schools" designed to train people for office occupations. Both are a part of the public school system and are operated with state and local funds. Another was established and developed as the result of a private grant for stimulating vocational education in a single county. Most of the remainder were outgrowths of the War Production Training Program of World War II. Since the war, program development has been stimulated by federal grants-in-aid for promoting vocational education, including the establishment of practical nurse training facilities. Training for technicians has, of course, been greatly facilitated by Title VIII provisions of the National Defense Education Act.

The Junior College

The junior college structure of Florida also reflects the county unit system of educational organization. The junior colleges, presently numbering 25, are administratively responsible to the State Board of Education through the State Superintendent of Public Instruction. Locally, however, they are controlled, through the county superintendent, by the county boards of public instruction of the respective counties in which they are located.

The number of counties served by a junior college depends upon potential student population and local readiness to support it. Some colleges serve a single county, while others enroll students from two, three, or more counties. It is believed that a county or group of counties must have a minimum potential junior college enrollment of 400 students. When a junior college is established through joint effort of two or more counties, the county in which the school is located becomes the county of control, and the others are known as cooperating counties.

Within the State Department of Education is a Division of Community Junior Colleges. This division helps the junior colleges develop programs that meet the needs of the counties they serve, and it helps them carry out the duties and responsibilities with which they have been charged by law or State Board directive.

The State Junior College Advisory Board, a seven-member lay committee appointed by the Governor, makes recommendations to the State Board of Education relating to personnel, curricula, finance, and the articulation and coordination of junior colleges with other educational agencies. It also reviews capital outlay requests and recommends the establishment of new junior college areas.

Other state agencies with which liaison is maintained are the State Board of Control, which supervises the operation of the state's university system, the Florida Educational Television Commission, and the Professional Committee for Relating Public Secondary and Higher Education.

Because of the additional responsibility that junior colleges place upon county boards, Florida law requires that a local advisory committee consisting of representatives of the county or counties served shall be appointed. This committee has a local function similar to that of the State Junior College Advisory Board. It assists the junior college and makes recommendations to the county board in matters relating to finance, curriculum, and general policies. In addition, the committee and the county superintendent must concur in the nomination of a president, who is confirmed by the county board and appointed by the State Board of Education. Members are nominated by the county board according to a formula established by State Board regulations and appointed by the State Board of Education.

Usually a junior college begins operations in a temporary facility for which the local school board assumes the cost of lease or rental. A permanent site, however, must be agreed upon by the counties to be served and must be approved by the State Board of Education with respect to size, accessibility, topography, and related requirements. Permanent sites must be provided by local school boards. Up to the present time, however, most of the sites have been obtained as gifts from interested individuals, groups, or governmental agencies.

The state bears the initial cost of the construction of permanent facilities and equipment as specified to meet minimum educational requirements. The size of the legislative appropriation for this purpose is determined by the full-time equivalent student enrollment in the school during the fall term of the year preceding the request. The formula used is modified periodically to reflect growing enrollments and rising costs.

The minimum foundation program includes $400 per instructional unit for capital outlay to replace obsolete buildings and to accommodate limited enrollment growth. These funds, or any part thereof, may be accumulated by the county board to be used for building or pledged for the repayment of bonds issued by the State Department of Education for that purpose. Basic current operating costs are met through the minimum foundation program, which is financed jointly by the state and the cooperating counties. This basic support program is supplemented by minimum student fees and by additional contributions from local tax sources.

The State Legislature appropriates the state's share of current operating costs and allocates construction funds; the State Department of Education provides consultative assistance and establishes the general regulative framework within which the colleges operate; and the State Junior College Advisory Board reflects public attitude regarding the total program. Nevertheless, most decisions governing specific programs and policies are made locally since it is believed that local control makes junior colleges more responsive to local needs.

As a result, there is closer articulation between the programs of the college and other educational agencies in the county or cooperating counties. For example, duplication of effort in providing vocational, technical, and general adult education is minimized, and facilities are used more effectively. The college is more sensitive to the need for providing a variety of community services and to the importance of offering training programs in technical and other occupations as needs are identified by local surveys. Industry, civic and fraternal groups, and the community generally have a closer feeling of identification with the college and are more interested in ensuring that it carries out its responsibilities effectively. In addition, costs may be more easily adjusted to the economic status of cooperating counties, and the minimum program assured by state funds may be extended through greater local effort.

Junior colleges in Florida serve several different purposes, all quite distinct. They reduce enrollment pressures on the universities by permitting high school graduates to take their early college work at two-year institutions, which are frequently within commuting distance of their homes. In addition, they provide educational and cultural services for adults in the communities in which they are located and for the counties which they serve. To a more limited degree, they offer preparatory and extension training in a variety of trades, technologies, and occupations, so that the vocational needs of adults are more adequately met.

To accomplish these purposes, three types of curricula are provided in accordance with regulations of the Florida State Board of Education. One is the college parallel curriculum consisting of academic transferable courses. Another includes general cultural and service courses and activities for adults in the counties served. The third, also for adults, consists of terminal vocational and technical courses which reflect local and state employment needs.

All of the junior colleges have relatively extensive college-parallel curricula. Many also have technical education programs. Most offer general and cultural courses and services. Terminal vocational training, however, particularly in agricultural, distributive, and industrial occupations, is not quite so common.

A number of factors help to account for this lack. Not the least of these is the cost of equipping appropriate training facilities. Probably equally important, however, are two further deficiencies. One is lack of understanding of employment requirements on the part of many college faculties. The other is lack of experience with vocational programs on the part of many administrators.

This makes the selection of the president of a junior college a highly critical matter, for if his institution is to carry out satisfactorily the various responsibilities assigned to it in the state's educational structure, he must understand and appreciate the significance of the vocational areas of education as well as the academic.

Use of State and Local Advisory Committees

State and local advisory committees contribute greatly to the effectiveness of vocational education. Most of them meet periodically, and they help to keep vocational educators abreast of changing occupational requirements and of technological changes affecting training for specific vocations.

According to provisions of the Florida State Plan for Vocational Education, state advisory committees for agriculture, distributive education, home economics, industrial education, and technical education shall consist of outstanding people in the respective fields. They are nominated by the appropriate state supervisors, recommended by the State Director, and appointed for one- to three-year terms by the State Superintendent. A state committee for industrial arts has also been established. Nonvocational home economics and general business education, however, use the vocational homemaking, business, and distributive and cooperative education advisory committees.

Slightly under half of the vocational agriculture departments had local advisory committees during the past school year. The principal of the school involved, in consultation with the agriculture teacher, nominates persons for membership who are interested in agricultural education, and they are appointed by the county school board, usually for a two-year term.

A separate local advisory committee is not always organized for each cooperative program. Sometimes a single committee serves all such programs in a given high school or county. It is recommended that the committee be composed of representatives of business, the press, the school, industry, and civic organizations interested in youth. Members are nominated by the teacher-coordinator in consultation with the school principal and are appointed by the county superintendent for terms which may vary in length from county to county. In several communities, advisory committees also work with adult vocational business and distributive programs.

Considerable attention has been devoted to stimulating the use of local advisory committees in industrial education during the past 2 years, with gratifying results. A majority of counties with industrial education programs have countywide general advisory committees to assist in county program planning. The county superintendent appoints the members for one- or two-year terms from nominations presented by the local director. It is recommended that, insofar as possible, nominations reflect organizations directly concerned with industrial training, including representation from both employer and employee groups. Joint apprenticeship committees are, of course, the advisory committees for apprenticeship-related classes such as masonry, plumbing, carpentry, electricity, and sheet metal work.

Training programs in which occupation or craft advisory committees are widely used are those preparing practical nurses, automotive mechanics, cosmetologists, aircraft mechanics, and dental assistants. The members of these committees are also appointed by the county superintendent for 1 or 2 years upon the recommendation of the local director in consultation with the principal or coordinator of the program concerned. The committees consist of representatives of the craft or occupation in which training is being given, and should include membership from both management and employee groups.

Nearly all technician training programs have local advisory committees. Because much technical education is provided within the junior college structure, personnel of the institutions offering the programs are involved in selecting the committee members. For programs outside of junior colleges, recommendations for membership are made by the local director or the day and evening coordinators to the county superintendent, who appoints the members. In junior college programs, recommendations from the dean of technical education go to the junior college president, who makes the appointments. To eliminate dual committees, it is recommended that the local director's office and junior college personnel concur in the nominations made to the county superintendent for appointment.

Considerable program strength is provided by local advisory committees, selected and approved by local school authorities, who are familiar with training needs and opportunities in the communities in which they live.

Guidance and Vocational Education

Another important key to a successful vocational education program is adequate student guidance. Requirements for certification as a guidance counselor in Florida schools have been established by the State Department of Education. The requirements include a combination of teaching experience and professional course work. Beginning in 1964, however, a master's degree in guidance will also be required.

At present a minimum of 2 years of classroom experience is mandatory. Approximately 15 semester hours of graduate work must be distributed among the following technical areas: principles of guidance; individual analysis, including the administration and interpretation of tests, rating scales, and personal records; counseling procedures; occupational information; and administration of guidance services. Another 15 semester hours must be taken in the areas of psychology, education, and economics and sociology, with a minimum of 3 semester hours in each area.

As with many other educational services, the developmental level of student guidance programs depends upon the interest of individual school personnel and the economic status of the respective counties. Some schools have extensive guidance programs, including educational and psychological testing and interpretation, counseling, and placement services. These are available to elementary and high school students and to adults. In other schools, guidance is primarily the responsibility of the classroom teacher.

The State Department of Education stimulates continuing interest in guidance through periodic state conferences and county workshops. Guidance releases, which are distributed at quarterly intervals, include discussions of problems confronting guidance personnel and lists of publications and materials of interest to them. It is recognized that there is a pressing need in most counties for guidance services for adults. In a few high schools, counselors remain after school hours to work with adults, but most communities do not provide this service.

Dade County, however, is an exception. An extensive adult guidance program, with a staff of certified adult counselors and closely articulated with the high school program, has been developed. Among the services provided are:

1. Reviewing the personal, educational, and occupational histories of individuals as an aid in developing self-understanding.

2. Administering and interpreting psychological and educational tests.

3. Counseling with individual adults on the basis of test results, and interpreting the implications of the results for educational, occupational, and personal adjustment.

4. Helping adults to plan a general or occupational education program, if they so desire.

5. Helping adults to find jobs when they are ready for employment.

Among the tests and records used to determine educational achievement and aptitude for training in specialized occupations are General Achievement Tests, Otis Tests of Mental Ability, General Educational Development Tests, Kuder Preference Record, School and College Abilities Test, and the California Tests of Reading and Arithmetic. Experimentation is carried on to determine the prognostic value of various instruments. Results are analyzed and provide assistance in revising admission requirements to training for numerous specialized vocations.

Selected Program Developments

Employment needs, the financial condition of the county and the demand for training are the most important factors determining the vocational services represented and the number and kinds of courses offered. Some institutions have facilities for offering all vocational services, including preparatory and extension training in a dozen or more industrial and technical occupations. In others, offerings are extremely limited and may be confined to a single service.

The programs and institutions described below are not typical. Indeed, they are discussed precisely for that reason. However, each represents the response of a single county or group of counties to particular training needs and problems. Space does not permit a report on all operational patterns in use, but none are flawless. However, they demonstrate that considerable program flexibility can be achieved.

CHIPOLA AREA EDUCATION PROJECT

An innovation of considerable promise for assisting in the further development of seven counties in northwest Florida is the Chipola Area Education Project. All the counties involved have common problems and cultural characteristics. Their economies are primarily agricultural. All are relatively sparsely populated, many family incomes are comparatively low, and the educational level of adults is somewhat under that of much of the remainder of the state.

Four of the seven counties have lost in population since 1940. The area experienced a net decline of approximately a thousand people during the past two decades. In 1940, about 5 percent of the state's population lived in the seven counties. By 1960, however, the proportion had dropped to slightly under 2 percent. This reflects not only the population loss in the seven-county area, but the relatively faster growth rate of other parts of the state.

The median incomes of families in six of the seven counties ranged from almost $2,600 to $1,450 below the state median. In the seventh, however, it was $135 above the state median. In four of the seven counties, over half the families had incomes below $3,000. In one, the proportion was 2 in 3, and the lowest ratio was 3 in 10. In all the counties, the median educational level of the people who were 25 years of age and over ranged from 1.5 to almost 3 years below the state median of 10.9 school years completed.

The age distribution of the population has also altered materially. In 1940 well over half (54.6 percent) were in the "under 25" age group. By 1960 the proportion had dropped to 48 percent. During the same period the "25 to 44" age category declined from 26.0 percent to 21.8 percent, while the ratio of those "45 and over" jumped from 19.3 percent to approximately 29.3 percent. These data demonstrate the extent to which the younger, more productive age groups have left the region to find employment. And this, in turn, gets to the very heart of the problem.

The purpose of the Area Education Project is to increase educational opportunities and services available to youth in small rural high schools. Potential training areas were determined through occupational interest inventories in which junior and senior high school students identified specific occupations that appealed to them. Although training plans are geared primarily to the needs of West Florida counties, the training also prepares youth for employment in occupations of their interest outside of these counties.

With funds provided by the National Defense Education Act, a guidance and testing program was established with headquarters at a junior college located in one of the seven counties participating in the project. Because the funds available to any single county would have been inadequate to provide the services desired, the cooperative multicounty project was developed.

To aid in establishing guidance and training services that would meet the needs of the greatest number of students, an advisory board consisting of the seven county superintendents and the project coordinator was organized. The coordinator of the project is also project director. He works with coordinating committees of school personnel in each county. However, the advisory board must approve all actions taken in connection with the program.

Most of the high schools in the seven counties are comparatively small, making it difficult and costly to add further vocational courses in the individual schools. Most of them offer vocational agriculture and home economics, and some have business and cooperative education, but finding an adequate number of suitable training agencies for the latter program is a serious problem.

Considerable attention was devoted to surveying and testing high school students to determine their interests, aptitudes, IQ's, and achievement levels. From these data and the results of a survey on the need for technicians in Florida industries, conducted by the State Department of Education, a number of additional training areas, particularly in industrial-technical education, were identified. Among these were electronic technology, drafting and design technology, and automotive mechanics. Electronic technology is now being taught within the junior college structure, and drafting and design technology will soon be offered, but automotive mechanics has been delayed because funds are lacking for building and equipping an instructional area. It is planned, also, to offer additional vocational courses such as business education and cosmetology as demand and finances permit.

Post-high-school students are transported for these courses at the junior college at the expense of the counties in which the students live.

The problem of extending such vocational education opportunities to boys and girls who will not attend the junior college and who need the training before graduating from high school still remains to be solved, for the services of the junior college have not been extended to them. They can enroll only in vocational education courses offered in the high schools that they attend.

There are several approaches to this problem. Industrial arts, consisting largely of woodworking, is offered in some high schools. One possibility is to establish additional industrial arts programs emphasizing instruction in areas having immediate industrial application. Another is to introduce one or more vocational industrial courses such as automotive mechanics and drafting in a single high school center to serve the students of more than one school. Still another is to provide more comprehensive curricula in the high schools of the respective counties. But lack of funds has severely restricted moves in any of these directions, however desirable they may be. The dual use of facilities by vocational agriculture and industrial arts remains still another possibility.

School officials in the area are aware of the additional training opportunities which could be made available for adults if facilities in secondary centers were expanded. Ultimately, it is planned to use junior college facilities for technical extension and other adult courses in areas such as radio and TV repair and servicing.

Neither the coordinator of the project nor the only coordinator of vocational and technical education in the area is a member of the junior college staff. Both are on the payroll of a single county but work with school officials in the seven counties in developing ways of meeting the training and guidance needs of high school students and adults in the area.

Among the benefits deriving from the project are (1) the provision of extensive guidance and testing services, which none of the counties could individually afford, (2) the establishment of some post-high-school industrial and technical training, and (3) a growing awareness on the part of many academic teachers of the range of student interests and aptitudes not related to college work.

The greatest single problem, in spite of federal expenditures, is a lack of funds, which severely limits the provision of needed training facilities. Closely related, however, is the need to make the best possible use of existing funds. This may involve the establishment of one or more high school centers to provide additional vocational education for youth in the seven-county area. Further demonstration of such need may be required, together with closer administrative coordination, but a workable pattern has been established.

DADE COUNTY VOCATIONAL-TECHNICAL PROGRAM

In 1960 Dade County and metropolitan Miami contained approximately 1 in 5 of the state's population and 1 in 6 of the school children in grades 1-12. To this total has been added a growing number of Cuban refugees — both children and adults — who are fleeing the Castro dictatorship.

Literacy education for Cuban refugees. One of the big problems confronting Dade County is assimilating these newcomers into the community, and a major difficulty is that most of them do not speak English. Before they can find jobs or benefit from vocational instruction, they must acquire a minimum command of English. Therefore, much attention is being given in the regular day schools and in adult general education courses to literacy education or intensive English.

It has been estimated that between 11,000 and 12,000 Cuban refugee youngsters are enrolled in grades 1-12. In addition, an average of 9,000 adults are constantly being taught by a staff ranging variously from 135 to 200 full-time and part-time teachers who serve approximately 20,000 adults annually. Certified teachers who have some command of Spanish and who volunteer their services are used. Retired teachers and others who had left the profession have been recruited. College graduates desiring to be of help in the emergency have been granted temporary certificates to teach adult classes. Even so, it has frequently been necessary to conduct classes through interpreters. A six-hour orientation workshop is held for personnel participating in the program, and a full-time person is employed to coordinate instructional activities.

Intensive English courses for adults are given in evening and adult high school centers in full-time and part-time programs. Some classes operate during the regular school day, but most are held during late afternoon and evening hours.

Instruction is provided on three levels. A student must achieve a minimum score, equivalent to eighth-grade reading competence, on a standardized reading achievement test before enrolling in a vocational course. If mathematics is important in the occupation for which training is desired, a student must also demonstrate satisfactory competence on a standardized mathematics achievement test.

It has been found that most refugee youngsters in high school classes are not yet sufficiently proficient in English to profit from vocational instruction. Adults demonstrate most interest and ability in vocational business subjects and hotel and restaurant training. Relatively few have entered industrial or technical education courses.

Preindustrial and pretechnical courses. The vocational and related education program incorporates several innovations which help to meet student needs. Among these are the preindustrial and pretechnical courses offered in a number of high schools having appropriate instructional facilities. The courses are neither industrial arts nor vocational education. They are intended primarily for 10th-graders who are not yet eligible for industrial, technical, or cooperative education. Included are prevocational courses in cabinet and millwork, cooking and baking, dry cleaning and laundry, electronics, machine shop, printing, radio and TV repair, tailoring, and trowel trades. The purpose of these courses is to develop basic concepts and skills in the vocational areas to which they provide an introduction. In addition, they help to determine the competence of youngsters in the areas selected for study and to equip them with a fund of understandings permitting faster progress in later vocational work.

However, the "pre" courses are not required of 10th-graders, nor are they prerequisites for enrollment in vocational courses. They are one of three elective sequences provided for 10th-grade students interested in industrial-technical education. The other two are industrial arts and technical education.

Technical education. Technical education in Florida is given at three instructional levels and in several types of schools. At the secondary level, technical preparatory courses are taught in comprehensive and vocational-technical high schools. Most technical preparatory training, however, is done in junior colleges. Extension classes, on the other hand, use the facilities of comprehensive high schools, junior colleges, and adult centers. At present, one high school in Dade County has courses in construction and in electronic and mechanical technology. The rest of the preparatory work is located on the Dade County Junior College Campus.

Eleven preparatory training curricula for technicians are offered by the junior college. These include technological courses in aeronautics, air conditioning and refrigeration, civil engineering, construction, data processing, electronics, graphic arts, instruments, machine drafting and design, and mechanics; and courses in industrial management and supervision. These offerings are not considered technician training courses. Because of the difficulties so frequently encountered in attempting to define a technician, the courses are simply intended to prepare for employment in technical occupations. Credits are earned for these courses, but no particular attention is given to their transfer value. If a course is needed, it is provided. It is notable, however, that credits in many of the above programs are accepted by four-year institutions.

In addition, the college offers technical extension courses in a number of areas. One of the most popular is industrial management and supervision, which is limited only by the availability of qualified instructors. Among the groups and agencies served are the Dade County Metropolitan Government, the fire and police chiefs of the county, hotel managers, postal employees, and a number of aviation companies.

Electronic data processing. Electronic equipment for processing educational data is in use in a number of more densely populated counties, including Dade County. Computers are being used to improve record keeping and to expedite course registration procedures. Although only limited applications to problem solving exist at present, it is believed that interest in such utilization will grow. In a recent survey conducted in the county, teachers in a variety of instructional areas, including industrial arts and vocational education, expressed considerable interest in learning more about programmed instruction.

As noted above, a two-year curriculum leading to an associate degree in data processing is offered by the junior college. In addition, numerous short courses and extension courses are given, and certain of the preparatory offerings are elected by prebusiness, premathematics, and preengineering students.

Testing, guidance, and student selection. Students are admitted in two ways to high school vocational courses or to technical classes in the one high school offering them. They may perform satisfactorily in a 10th-grade industrial arts or prevocational course related to the vocation they desire to study, or they may meet minimum requirements on standardized tests of mental ability, reading, and arithmetic skills. Minimum and probationary percentile requirements are higher for technician trainees than for other vocational students. Approximately half of the admissions to high school industrial and technical courses are probationary.

Contrary to common practice, high school students may enter the industrial or technical education program when they are in the 12th grade. Those electing a technical specialization can complete their second year of training in the junior college. Those who are industrial education trainees may enroll in an adult program or take a closely related junior college course for their second year of training. This flexibility stems from the close articulation of secondary vocational and technical programs with post-high-school and adult education permitted by local control of the county's educational facilities.

All technician trainees enrolled in junior college preparatory courses take technical aptitude and achievement tests administered by the Florida Industrial Commission. In addition, the college is cooperating in the United States Office of Education technician testing program involving four instructional areas: aeronautical, electronic, mechanical, and machine design technology.

In the adult vocational education program, minimum standards have been established for admission to training for every trade taught. Test batteries, varying by trades, have been designed to determine an applicant's aptness for specific training and his probable success in the occupation.[2] To ensure that training meets current occupational demands, every instructor has a course outline which has been approved by the curriculum committee.

About 85 percent of all adults are processed through the adult guidance program before enrolling for a course. Most of the remainder are home economics students who are taking courses for self-improvement, but some evening trade extension enrollees are also exempt. The latter, however, must present a letter or other evidence indicating that they are or have been employed in the occupation for which training is being given or in one which is closely allied.

Nearly all adults take the Gray-Votaw-Rogers reading and mathematical achievement test battery. An applicant failing to achieve the minimum required scores may retake the tests after additional study. If he passes, he is further screened by members of the appropriate craft committee and by instructional and guidance personnel who provide additional counsel based upon his test performance.

If problems develop after the student is admitted to training, his case is reviewed. Upon the outcome of further counseling, he is retained or dropped from the course. If it is deemed desirable that he discontinue training, he is encouraged to establish new vocational goals, and may take a general aptitude test battery to aid in determining such goals.

Placement and followup of students and graduates are an integral part of the adult guidance service. The current and potential labor market is constantly studied to determine present demands and changing job requirements. The student's counselor works with the placement officer and instructor in contacting prospective employers so that the student is placed to his own and the employer's best advantage.

The trade instructor assumes major responsibility for placing his students because he is most familiar with their qualifications and employer needs. The placement office, on the other hand, handles most placements for business education graduates and for students seeking part-time jobs. Monthly placement reports are compiled, and a complete record for all programs is developed periodically. Close liaison with the Florida Employment Service is also maintained.

Program supervisors and coordinators cooperate with the Guidance Department in planning and conducting followup studies of each past year's graduates to determine the jobs they hold and their assessment of training effectiveness. In addition, employers are contacted to evaluate trainee performance as related to the course studied.

Provision for low achievers. It is recognized that a certain proportion of youth lack the inherent capacity to succeed in a typical high school program. Yet, they will become job seekers and need the opportunity to become as self-reliant as possible. To keep these youth in school and to provide them a level of education commensurate with their abilities, a diversified mechanics course is taught in three high schools by specially qualified teachers. The course is intended for 10th-, 11th-, and 12th-graders having IQ ratings of 85 or less; it consists primarily of metal fabrication or production work; it continues for 2 or 3 periods daily. During the remainder of the school day the students take selected academic courses in which they are able to achieve some measure of success.

Projected program modifications. In the near future, technical education curricula will be evaluated to determine if they are meeting changing employment needs as identified by appropriate advisory committees. It is also anticipated that some technical training in the junior college will be organized on a cooperative basis. The student will attend school for a part of the time and work part time at a job requiring technical proficiency of the type which he is studying.

Upon the advice of appropriate advisory committees, and due to local employment conditions and the results of program evaluation, a number of courses not meeting established objectives have been discontinued and replaced by new classes conforming more closely to current employment demands. The result has been an increase rather than a decline in enrollment. It is anticipated that other courses, particularly in the extension program, will be examined closely to ensure their continuing sensitivity to changing occupational requirements.

---

[2] At the time of writing, students training to become food handlers had been tested, and the program had been evaluated. A test battery in the hotel workers' training program was in process of being evaluated to determine its effectiveness as a screening device. In part, the validation process consisted of checking the instructor's estimate of a student's class performance against his scores on a test battery.

INDUSTRIAL-TECHNICAL EDUCATION AT DAYTONA BEACH JUNIOR COLLEGE

The Daytona Beach Junior College is one which provides a very diversified curriculum, including 12 different industrial education programs and 2 technology programs. In addition, trade and technical extension courses are given within the administrative structure of the college.

Terminal industrial education is provided in the Mary Karl Vocational Division, an administrative part of the college. The courses include appliance service; automotive mechanics; cabinet making, millwork, and furniture making; cosmetology; drafting; gasoline engine mechanics; industrial electricity; industrial electronics; landscaping and industrial nursery work; photography and photo finishing; practical nursing; printing; and watchmaking. Construction technology and electronics technology, on the other hand, are offered within the transfer division of the college. The trade extension program includes apprenticeship training in sheet metal, plumbing, carpentry, and electricity. A distributive education program is also provided, and the school includes a vocational rehabilitation center. Slightly under one-fourth of the total enrollment is made up of vocational students. These are primarily adults, but upon the recommendation of their principals, a small number of high school students are also taking vocational courses.

The Director of the Mary Karl Vocational Division is administratively responsible to the president of the college and, through him, to the county superintendent of public instruction. The same is true of the Director of the Adult Education Division, the Director of Technical Education, and the directors of the other divisions and services within the college structure.

If a county director of vocational education should be appointed to the county superintendent's staff, it is anticipated that he will work through the Director of the Mary Karl Vocational Division in matters relating to the college vocational program. In the high schools and other adult centers of the county, he will work with appropriate administrative personnel in these centers.

All adult vocational and technical education and all general adult education offered in the two counties served by the junior college are administratively a part of the junior college organization. One advantage is the centralized administrative control over vocational and general adult offerings in the area served by the college; another is the economies effected in providing the services requested. However, if the organization is to function effectively, adequate provision must be made for supervising its many facets, and budgetary responsibilities and controls must be clearly defined.

PINELLAS COUNTY TECHNICAL EDUCATION CENTER

An innovation among Florida institutions providing technical education is the publicly supported two-year technical education center projected for Pinellas County and the Tampa Bay area. This center, the first of its kind in the state, grew out of a need expressed by industrial representatives for an institution that would be adequately equipped to provide technical preparatory, extension, and supervisory courses specifically reflecting immediate industrial requirements in the area.

Technological courses may be provided in mechanical drafting and design, machines, metallurgy, illustration, air conditioning and refrigeration, electronics, and in other fields for which a need is identified by school officials and advisory committees. The program offered will include only technical laboratory work and instruction in closely related areas, such as applied technical mathematics and science, technical report writing, and allied fields identified in cooperation with representatives of industry.

The center will give high school graduates of secondary school technical education programs a chance to continue their technical studies. It will aid people who want concentrated instruction in specific technical fields without having to meet the general educational requirements for an associate degree. When completed, staff and facilities will also be available to employed technicians, engineers, and other industrial personnel for short courses and extension courses and for other instructional and related services.

Conclusions

Each of the vocational programs reviewed above is the response of a county or group of counties to a problem. The Chipola Area Education Project, for example, dramatizes the difficulties encountered by sparsely populated and financially restricted counties.

Some counties have a relatively large number of high schools with small student bodies. In these, it is impossible to provide a reasonably comprehensive program of vocational offerings. In surveys of vocational programs in such counties, it is frequently recommended that a single high school be designated by county school officials to house a comprehensive vocational program, and that students from neighboring high schools in the county be transported to that school to take vocational courses not offered in the schools they attend. In the evenings, the facilities can be made available to adults for preparatory or extension training as employment demands require.

Additional area education projects can be developed by groups of adjoining counties with small high school populations. In the event a junior college is not available for a center, it will be necessary to construct an area center or to designate a centrally located high school to serve in that capacity. It will, of course, be necessary to make arrangements to transport high school students from neighboring counties to the center. However, such a procedure is already followed with junior college students who are transported by school bus from the counties in which they live to the junior college serving their area.

It is believed that technological developments at Cape Canaveral and the needs of associated industries and services will create a demand for additional centers like that under construction in Pinellas County. Specialized training needs for employed technicians can best be met through short courses and extension courses offered in such centers. The facilities can also be used for intensive preparatory training of qualified people who are seeking immediate employment.

At the present time Florida has 49 comprehensive high schools. Others are under construction, however, and more are being planned. As the number increases, it is believed that a higher proportion of high school students will enroll in vocational courses. In 1960 slightly over 1 in 4 students in grades 9-12 took vocational courses. By far the greatest proportion, however, were enrolled in vocational agriculture and home economics. In view of the growing demand for trained clerical and sales people and for skilled workers and technicians, more emphasis is being given to extending educational opportunities in these areas in the newer high schools.

Potentially disastrous in its implications is the problem of youth who are dropping out of school before graduation. Lack of interest or ability in school subjects, a desire to become economically independent, or the need to assist in family support are among the principal sources of difficulty. Some help would probably result from scheduling industrial arts for greater numbers of youth. Making vocational education available at an earlier age for youth of lesser ability or dwindling school interest and providing more work experience programs might cause these youth to remain in school longer. In any event, they would be equipped with rudimentary skills to make them more employable when they leave school.

Extensive efforts are being made through conferences with junior college presidents and other administrative personnel to explore the role of the junior college in county programs of vocational education. Dade County demonstrates the advantages of close articulation between secondary school industrial and technical education programs and junior college and adult education programs. A similar situation exists with respect to vocational industrial education in a number of the 25 junior colleges, particularly if they share a campus with a secondary school. In such cases training facilities are not duplicated. Instead, they are used at different times by both high school and junior college students and are also available for extension courses. It is believed that this practice has considerable merit and can be extended to situations in which the schools do not have a common campus. A combination of appropriate administrative procedures and a common purpose are needed to accomplish this.

It is anticipated that statewide and local program development will be based increasingly upon the results of research. But this will not be possible until studies having predictive value are undertaken. Electronic data-processing equipment is indispensable in research. It is anticipated that future research designs will take greater advantage of the machine's vast potential so that it will not remain merely a tool for expediting the collection of administrative data and performing routine clerical calculations.

Florida is growing at a phenomenal rate. Advance is compounded upon advance in rocketry and in less spectacular industries and services as well. Farm income and output are rising, but the proportion of farmers is declining. More homes are being established, but more women are employed outside the home. More youth are in school, but many are not finishing. Factors such as these are part of today's social reality. All dramatize the need for more training and retraining, for adequate guidance for youth and adults, for more programs helping youth to determine their interests and capacities. These needs can be met promptly and with vision by a flexible program of vocational and related education.

PRECEDING PAGE BLANK-NOT FILMED

X. Vocational Education in Kentucky

By E. P. Hilton[1]

According to census reports, Kentucky had a population of 2,944,806 in 1950 as compared to 3,038,156 in 1960. There were in 1960 about one million persons in the labor force, distributed among the professions and occupations approximately as follows:

Occupational Groups	*Percent*
Professional, technical, and kindred workers	6.1
Managers, officials, and proprietors, except farm	6.8
Farmers and farm managers	17.4
Farm laborers and foremen	7.4
Clerical and kindred workers	8.3
Sales workers	5.7
Craftsmen, foremen, and kindred workers	11.5
Operatives and kindred workers	19.9
Service workers, except private household	6.1
Laborers, except farm and mine	5.6
Private household workers	2.5
Not reporting	2.7

During the decade there was much shifting of workers among occupational groups. Some rural counties lost as much as 25 percent of their population. Agriculture is still the state's largest industry, however, and more workers are engaged in farming than in any other occupation. This will be true for many years to come. Even if the present downward trend in the number of farms and farm operators should continue over the next decade, the state will need a minimum of 3,000 new farm operators per year. In this day of modern technology these people must have training. Another important industry in the state is coal mining. The number of workers required in coal mining has also declined markedly due, among other things, to mechanization and automation. Other than in mining and farming, occupational groups have tended to follow the national pattern.

Vocational Agriculture

In 1961 fewer than 3,000 boys graduated from high school with training in vocational agriculture. Recent followup studies of our students show that about one-third of those having taken vocational agriculture in high school actually farm. This means that only about one-third of the 3,000 new farm operators each year have received training in vocational agriculture in the high school program. Of the remaining 2,000 graduates in vocational agriculture, some enter vocations related to farming or vocations in which agricultural experience and training are very helpful; some enter industry based on the skills learned in farm mechanics classes; and others enroll in post-high-school trade and technical courses as a result of an interest aroused while in these classes.

Departments of vocational agriculture in the rural high schools are providing agricultural training for young men out of school and other adults who have just entered or are already established in farming. During the year 1960-1961, 2,181 young men just entering farming were enrolled in courses of instruction in agriculture. Most of the young farmer courses of study are set up on a four-year basis. This means that there are a few more than 500 completing the young farmer course each year. This is about one-sixth of the number that should be completing such courses.

Classes of instruction for older farm operators are offered each year to help existing farmers adjust to the changing practices in agriculture. A total of 4,757 of the 150,904 farm operators in the state were enrolled in such programs of instruction during the year 1960-1961. The regular high school teacher of vocational agriculture usually teaches one group of young farmers or adult farmers, and within the limits of available funds, additional teachers are employed to teach in the program. There are now in the state 15 teachers devoting full time and 5 teachers devoting part time to the teaching of adult farmers [illegible] teachers employed for young farmer and adult farmer programs are members of the high school faculty and are entitled to all the rights and privileges of other faculty members.

---

[1] Director of Vocational Education, Kentucky Department of Education.

Vocational Home Economics

The 1960 census indicates that there were 851,867 households in Kentucky. During the school year 1960-1961, 25,854 high school students were enrolled in approved home economics programs in 317 high schools out of a total of 507 high schools in the state, and in addition, 6,065 persons were enrolled in noncredit adult homemaking classes. Instruction for adult homemakers may be given by the regular high school teacher or by special instructors. All persons teaching adults are employees of the local boards of education, and the local boards are reimbursed in full from state and federal funds for their salaries.

Only a small percentage of present or potential homemakers are receiving instruction in home economics to help them meet the everchanging demands and needs of homemaking. The program in the high schools is being limited by inadequate funds and lack of qualified personnel. Since most teachers of home economics have large classes of high school students, little time is left for instruction for adult homemakers, or for organization of adult classes and supervision of the special instructors. Requests are on file for more than 40 additional high school home economics teachers.

Distributive Education

Approximately 57,000 persons in the state are engaged in sales. Through our distributive education program, 763 high school students were being trained for this program during the year 1960-1961. The classes in distributive education are operated as a part of the local high school in cooperation with retail and wholesale stores in the community. Each student enrolled in a distributive education class is employed for 15 hours per week in some business and is following a supervised work program agreed upon by his teacher and his employer. In addition to the high school classes in the cooperative program, 1,927 persons already employed in the sales field received instruction to upgrade them in their work. The need for the training of persons in the sales and distribution field is not being met. Kentucky is a state of many small towns and villages, and in most high schools there is not enough demand to justify the employment of an instructor for distributive education; the present programs are found in our larger cities.

Trade and Technical Education

The training for technicians, craftsmen, foremen, operators, and service workers is carried on through vocational programs in trades and technical education. These combined occupational fields employ about 37.5 percent of the workers in the state. Only 4,637 persons were enrolled in preparatory training programs in these areas in the year 1960-1961. An additional 6,064 already employed received training on a part-time basis to help upgrade them in their work.

THE DEVELOPMENT OF AREA VOCATIONAL SCHOOLS

In Kentucky, all programs of trade and technical education are operated through area vocational schools. Although these schools are primarily postsecondary institutions, the high schools send their students to them for trade and technical training. The few community or junior colleges operating in the state have provided no vocational or technical training up to the present time.

A significant amount of vocational training is provided by private schools and industry. Private trade and technical schools serve a few people in select areas. Private business schools serve a substantial number of people, but for the most part, they are located in metropolitan areas and are not reaching students in the more rural areas.

Industry has been doing a good job training its own employees. But most industry has been located in the metropolitan areas, and its training programs do not reach people in the rural areas. Industry is turning more and more to the area vocational schools for the training of its prospective employees and the upgrading of the skills of its existing employees.

Area school programs may be administered by local boards of education or by the State Board of Education, which, in Kentucky, is the same as the State Board for Vocational Education, but the trend is toward State Board operation. Three schools have been operated by the State Board for some time, and upon authorization of the Legislature, the operation of seven more was transferred to the State Board on July 1, 1962. Only four of the schools are now being operated by local boards.

Operation of the area schools by the State Board has proved to be more satisfactory than operation by local boards. In the latter case, the board of a single school district must assume the full responsibility for operating the area school on behalf of all the districts in the area. The primary concern of a local board is education within its own district, and it is difficult for a board to develop an area vocational program satisfactory to all of the districts in the area. Operation by the State Board assures total area responsibility, prevents jealousies from developing between local districts, and facilitates administration of the schools according to the state pattern for area schools.

The area vocational school system in Kentucky began in 1938 with the establishment of the Mayo Vocational School in Paintsville and the West Kentucky Vocational School for Negroes in Paducah, and it expanded substantially during World War II when the country was faced with the urgent need of skilled manpower. As shown on the accompanying map, each of the area schools is designed to serve a number of counties.

The schools have rather comprehensive offerings covering most occupations. One school may have course offerings for as many as 20 different occupations, and the course offerings may be expanded as needed.

Building facilities are now being expanded at 9 of the 10 area schools being operated by the State Board of Education. The Northern Kentucky State Vocational School is just completing a million-dollar building program. The Mayo State Vocational School is adding a classroom and science building to cost approximately $400,000. West Kentucky Vocational School is adding a new vocational building at a cost of approximately half a million dollars. New vocational buildings that will provide about 30,000 square feet of floor space each are being constructed at six other area schools, namely, Ashland, Harlan County, Hazard, Jefferson County, Madisonville, and Somerset.

Each of the area vocational schools is administered by a director. The State Board of Education appoints the director for each state-operated school upon the recommendation of the Superintendent of Public Instruction. The director is responsible to the Director of Trade and Industrial Education in the Bureau of Vocational Education, State Department of Education, for the administration of the program in his school.

The director of each area vocational school operated by a local board of education is employed by the local board of education upon recommendation of the local superintendent of schools. He is responsible to the local board through his superintendent for the administration and operation of his school. Although the director of an area vocational school is administratively responsible either to the State Board of Education or to the local board of education he leans heavily on the local school administration in his area for counsel and advice on all matters pertaining to school organization and administration. An area vocational school would have difficulty in succeeding without the support of the school administrators in its area.

COURSE OFFERINGS AND ORGANIZATION

Each area vocational school offers, in addition to postsecondary technical-vocational courses, a variety of courses of less than college grade or of noncollege grade but broad enough in scope to provide training for the major occupational fields in which the residents of the area are engaged. The courses provide for preparatory training for entrance into industrial and business occupations as well as for upgrading those already employed. Training is provided for industrial and electronic technicians, licensed practical nurses, beauty culture, food trades, and office practice, as well as for most trades found in the area. The course offerings are limited only by funds for programs and by the demand for them. In fact, the choice of courses offered is heavily influenced by the requests of industry.

ORGANIZATION OF COURSES

Courses are organized to meet the training needs of the occupation. They may range from 1 or 2 weeks to 2 years in length. Most basic courses for the skilled trades are organized for 2,640 hours of instruction. These courses may be completed in 22 months of full-time instruction of 6 hours per day on the post-high-school level. High school students may enroll in the area vocational school for 3 hours per day, 5 days per week, during their last 2 years in high school and complete the course by attending 6 hours per day for 1 full year after graduation from high school. All of the area vocational schools, with the exception of Ahrens, serve as vocational departments for all high schools cooperating with them. The high school pupil enrolls in his regular high school and takes at least two nonvocational courses for one-half day, and he spends the other half day of 3 hours in the area school in vocational classes. The area vocational school does not have a program of activities, such as athletics, for high school students; the students are expected to participate in the programs of their home high schools.

The Ahrens Vocational School is a comprehensive vocational school and offers both nonvocational and vocational courses. It offers a four-year program and gives a high school diploma. It also offers instruction for adults on the post-high-school level in much the same manner as do the other area vocational schools.

Courses of instruction in practical nurse education are offered in cooperation with local hospitals. They are 12 months in length, and are open only to post-high-school students.

COURSE DEVELOPMENT

Each course offered by the area vocational school is developed by the instructional staff in the school in consultation with labor and industry. Craft advisory committees are used by each school in developing and keeping up to date all course material and techniques in instruction.

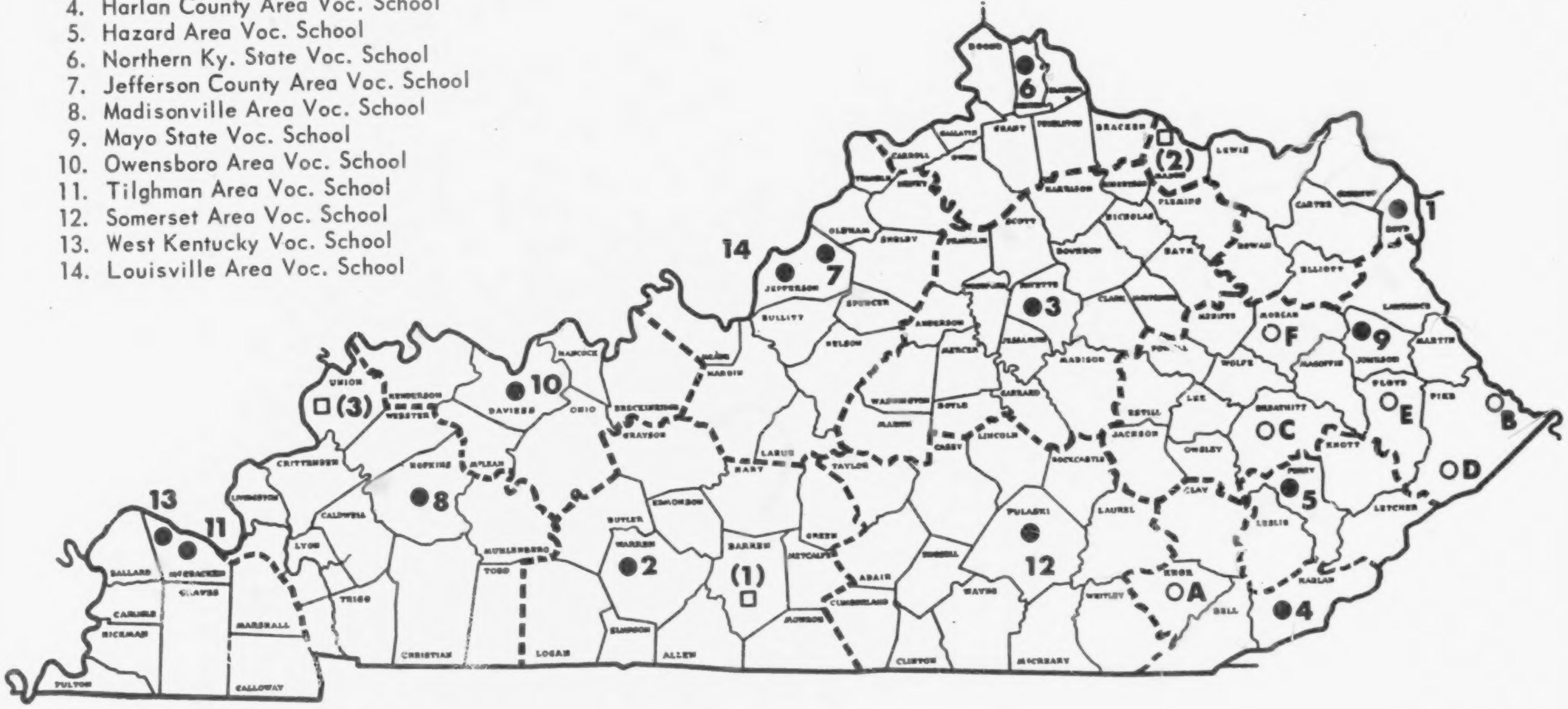
Extension Centers — Area Vocational Schools

Although the 14 area vocational schools are fairly well distributed geographically over the state, they are not within commuting distance of all who need their services. In an effort to serve all the people on a commuting basis, extension centers from the original 14 schools are being developed. The extension centers are not expected to offer postsecondary courses; they are primarily to serve the students in the junior and senior classes of the high schools located within their commuting areas. It is expected that the day school preparatory program in the extension centers will consist

KENTUCKY

● – AREA VOCATIONAL SCHOOLS

1. Ashland Area Vocational School
2. Western Area Voc. School
3. Lafayette Area Voc. School
4. Harlan County Area Voc. School
5. Hazard Area Voc. School
6. Northern Ky. State Voc. School
7. Jefferson County Area Voc. School
8. Madisonville Area Voc. School
9. Mayo State Voc. School
10. Owensboro Area Voc. School
11. Tilghman Area Voc. School
12. Somerset Area Voc. School
13. West Kentucky Voc. School
14. Louisville Area Voc. School


1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
(1)
(2)
(3)
FULTON
BALLARD
CARLISLE
HICKMAN
McCRACKEN
GRAVES
MARSHALL
CALLOWAY
LIVINGSTON
CRITTENDEN
LYON
CALDWELL
TRIGG
CHRISTIAN
UNION
HENDERSON
WEBSTER
HOPKINS
McLEAN
DAVIESS
HANCOCK
OHIO
MUHLENBERG
TODD
LOGAN
BUTLER
WARREN
SIMPSON
ALLEN
EDMONSON
GRAYSON
BRECKINRIDGE
HARDIN
LARUE
HART
BARREN
MONROE
METCALFE
GREEN
ADAIR
CUMBERLAND
CLINTON
TAYLOR
CASEY
WAYNE
McCREARY
PULASKI
LAUREL
WHITLEY
KNOX
BELL
HARLAN
LESLIE
CLAY
JACKSON
ROCKCASTLE
LINCOLN
BOYLE
MARION
WASHINGTON
NELSON
BULLITT
JEFFERSON
OLDHAM
SHELBY
SPENCER
ANDERSON
MERCER
JESSAMINE
GARRARD
MADISON
ESTILL
LEE
OWSLEY
BREATHITT
PERRY
KNOTT
LETCHER
PIKE
FLOYD
JOHNSON
MARTIN
MAGOFFIN
WOLFE
MORGAN
MENIFEE
ELLIOTT
LAWRENCE
BOYD
CARTER
ROWAN
BATH
FLEMING
LEWIS
MASON
BRACKEN
NICHOLAS
BOURBON
CLARK
FAYETTE
SCOTT
FRANKLIN
HARRISON
PENDLETON
GRANT
OWEN
GALLATIN
CARROLL
TRIMBLE
HENRY
BOONE
KENTON
CAMPBELL

○ – EXTENSION CENTERS IN OPERATION

A. Barbourville (Knox Co.)
B. Belfry (Pike Co.)
C. Jackson (Breathitt Co.)
D. Millard (Pike Co.)
E. Prestonsburg (Floyd Co.)
F. West Liberty (Morgan Co.)

□ – EXTENSION CENTERS PLANNED OR UNDER CONSTRUCTION

(1) Glasgow (Barren Co.)
(2) Maysville (Mason Co.)
(3) Morganfield (Union Co.)

almost entirely of high school students, but training for adults will be provided after regular school hours and during the evenings.

A committee of vocational educators and others has developed a plan for locating extension centers, and the following criteria have been approved.

1. Extension centers should be located to serve the people in the community. Centers should be so located that regular school attendants will not have to be transported more than 25 or 30 miles to attend a school, and one area school or a center should not be nearer than 25 miles to another.

2. There should be a minimum of three approved areas of training.

3. There should be a minimum of 1,500 students enrolled in the upper 4 grades of the cooperating schools.

4. The center is to be administered by the area vocational school serving the area at the time the new subarea is established.

5. A minimum of 100 young men enrolled in the 11th and 12th grades of the participating schools who are interested in and could profit from vocational training must have indicated through preenrollment their desire for such training.

6. The center must provide opportunities for the training of out-of-school youth, those 16 years of age or above who have dropped out of public schools. They, of course, must have the abilities and aptitudes to profit by such training.

7. Adults must also be given an opportunity for training.

8. A testing and guidance program approved by the Bureau of Guidance in the Department of Education must be in operation by all participating counties.

9. Buildings in which training is to be done must be furnished by local people. Such buildings must meet the approved standards for the course offerings and must be approved by the Division of Buildings and Grounds in the Department of Education. (Minimum standards should be listed for each shop.)

10. The local boards of education must be financially able to participate in a building program before they can provide any capital outlay for this purpose. Their financial ability is to be determined by the Department of Finance in the Department of Education.

11. The instructional costs are to be paid from the foundation program funds and special state and federal funds.

12. Any instructional costs of high school students will be borne by the allotment of funds under the foundation program.

13. Equipment will be furnished by the area vocational school serving the center. Such equipment will be purchased from state and federal funds.

14. The total cost of education for out-of-school youth and adults will be borne by state and federal funds.

15. Transportation costs for high school students should be borne by the transportation formula in the foundation law.

16. All utilities will be prorated between the high school and adult programs.

Extension centers are operated cooperatively by local boards of education and the area vocational schools. When a local board of education wishes to establish an extension center, it must submit to the Division of Trade and Industrial Education a request for the establishment of an area vocational extension center. This request should be supported by the following information:

1. Facilities or buildings available for vocational purposes, or the plans for the building of such structures

2. The high school enrollment in the participating center and the number of students from the 11th and 12th grades who could profit from and would be interested in the vocational course

3. A survey of the out-of-school youth in the area, including both boys and girls from the ages of 16 through 21 and some indication of the number of these who would desire and could profit from such training

4. A sample survey of adults through the ages of 21 to 25 and some indication of their interest in vocational training

5. A map of the area showing the roads leading to the center, distances of the schools from the center, and some information about the density of population

6. Population trends and other information indicating the prospective growth or decline of the population in the area

At the present time, five extension centers are being operated in cooperation with the Mayo State Vocational School in Paintsville. The Knox County Board of Education is cooperating with the Harlan County Area Vocational School in an extension center at Barbourville. Extension centers at Glasgow, Maysville, and Morganfield are now in the planning or construction stage. These centers are shown on the map presented on an earlier page.

It will require approximately 20 extension centers in addition to the 14 parent area vocational schools to bring trade and technical education within the reach of all the people within the state. This program is being implemented as fast as facilities and operating funds will permit.

The courses offered in the extension centers will be the same in content as those offered in the parent area vocational school, but the extension centers will offer only those courses that are of local interest and that train for the more common occupations. Usually the high school student will enroll in the extension center for 3 hours a day, 5 days a week, during his junior and senior years, and complete the course in the parent area school by attending 1 full year after high school graduation.

Financing the Program

The program of vocational education is financed through local, state, and federal funds.

The secondary phase of vocational education is financed through the state foundation program for education. Under this program, each district is required to make a minimum local effort; and after this effort has been met, the state pays the additional cost of the program up to a minimum level. Kentucky Revised Statutes state:

> Section 157-360 (1) In determining the cost of the foundation program for each district, the Superintendent of Public Instruction shall allot to each district classroom units for elementary and secondary schools, classroom units for vocational education, classroom units for special instructional services for exceptional children, classroom units for superintendents, principals and their certificated assistants and special instructional service personnel, classroom units for supervisors of instruction, and classroom units for directors of pupil personnel; provided, however, that the number of classroom units allotted any district shall not exceed the number of teachers employed by the district.

The basic classroom units are allotted on the average daily attendance of 27 pupils per teacher. Vocational education units are allotted under Kentucky Revised Statutes as follows:

> (4) . . . one classroom unit shall be allotted for each full-time teacher, and a proportionate fraction of a classroom unit shall be allotted for each less than full-time teacher of vocational classes that meet the regulations of the State Plan of Vocational Education as approved by the State Board of Education; a proportionate fraction of a classroom unit shall be allotted for each teacher employed to teach evening, part-time, or short unit classes for less than a school day or a school year that meet the regulations of the State Plan of Vocational Education as approved by the State Board of Education.

All vocational units are allotted to the district sending pupils to the area vocational school. This district contracts with the area vocational school for all pupils under 21 years of age from its schools. The contract rate will depend largely on the funds received from the state's foundation program for classroom units in vocational education. Each classroom unit in vocational education carries with it an allotment of funds for each teacher as follows:

Teachers' salaries	$4,000 to $4,600
Operation costs	$900
Capital outlay	$600

The cost of instruction for students under 21 years of age is financed through the foundation program. These students pay only a fee of $3 per month for instructional supplies. The cost of instruction for students 21 years of age and over is financed through state and federal funds for vocational education and from fees charged each student. At the present time the fee for those 21 years of age and over is $15 per month. No contract between local boards of education and the area vocational school is made for adults. The area vocational school recognizes no district boundaries for those 21 years of age and over.

The financial support for vocational education for the year ending June 30, 1961, was as follows:

Federal funds — all programs	$1,227,254
Foundation funds (state and local)	3,904,146
State funds—vocational appropriation	1,203,071
Fees and incidental receipts	299,867
	$6,634,338

Teacher Training

The training of teachers for vocational subjects is a problem in Kentucky. All the state colleges and some private colleges offer training for teachers of home economics, but the turnover is rapid, and there is always a shortage of home economics teachers. This is particularly true in the more outlying areas where there is little or no employment for the teachers' husbands. It is not so true in Franklin County where husbands may be employees of the state.

The training of teachers for agriculture and for trade and industrial education is centered in the University of Kentucky. The supply of teachers being trained in agriculture about meets the demand under the present financial support for vocational agriculture.

Teachers for the trades programs must come from industry itself. The first requirement for a trades teacher is that he know his job. All teachers of trades subjects are required to have a minimum of 3 years of work experience on a journeyman level. After teachers have been recruited from the trades field, they must be given some preservice training to get them started in the teaching field, and then be upgraded through inservice training.

The preservice work is done at the university. Throughout the year, teacher trainers from the university offer professional courses by extension for teachers in the area schools. Teacher trainers also give individual on-the-job instruction to employed teachers. During the month of August when the vocational schools are closed, all teachers are brought into the university for a two-week inservice training program.

Vocational teachers in all fields have a difficult time in keeping up to date. Changes are taking place so rapidly that a constant inservice training program must be carried on. The majority of homemakers are also wage earners, and the courses of study in homemaking must be constantly adjusted to meet the implications of the dual job. The mechanization and expansion of the farm as a business unit make it necessary that teachers of agriculture constantly change their course of study and their teaching materials. Workshops for teachers in farm mechanics, farm management, and other phases of farming must be provided to keep the teachers up to date.

Teachers in the trades fields must have not only inservice training through individual instruction and organized group instruction but also the opportunity to know what is going on in the trades field in which they are teaching. Opportunities must be provided for them to visit the factory or the shop and be brought up to date on what is new in their fields.

One of the biggest weaknesses in the training of teachers for the trades occupations is inadequate preservice training. If the quality of these teachers is to be improved, some means must be found to provide a preservice training program that will combine trade experience and professional training.

Research

Another weakness in our vocational education program in Kentucky is the lack of adequate research and followup studies. About 10 years ago, a study was made of what happened to the boys who had vocational agriculture in high school in the decade from 1940 to 1950. Since this was the war-years period, as well as being 20 years ago, the findings are not now applicable. The study needs to be repeated. A research program is being inaugurated in the homemaking field, with all the state colleges participating. Comprehensive research programs in many fields of trade and industrial education are needed, and greater use should be made of the existing research.

Program Projection

The plan for implementing the area vocational school was given increased emphasis by the recent session of the Legislature in placing the operation of 7 more of the 14 area vocational schools under the State Board of Education. When the area vocational program is fully implemented, vocational education in trades and industry will be available within commuting distance of most of the high schools and people in the state.

The programs in agriculture and home economics continue to be an integral part of the programs of the individual secondary schools, and the high school departments in vocational agriculture and home economics continue to provide training for both high school youth and adults. But it is a part of the plan that the area vocational schools will provide programs of instruction in vocational agriculture and in certain areas of homemaking when needed. In sparsely settled areas or in urban areas, where there are too few farm boys and courses in agriculture become too costly for the high schools to offer, programs in vocational agriculture may be established in the area vocational schools for those boys who need and want such training. For this type of program, the boys would be transported from their high schools to the area schools in the same way that students are transported for trade and industrial education programs. It is contemplated, for example, that a program of vocational agriculture will be established in the area vocational school in Jefferson County, which is largely urban, because there are a number of boys enrolled in the different county high schools who want training in agriculture. The only difference between the vocational agriculture in the area vocational school and that in the local high school will be the length of the course and length of class session. In the area school, courses will be 2 years in length, and class sessions 3 hours long; in the local high school, courses will be 4 years in length, with daily 60-minute class sessions. In the local high school, the boy will receive one unit of credit, while in the area vocational school, he will receive two units of credit per year.

It is contemplated that the area vocational schools will provide training for certain occupations related to farming, for example: training of technicians in agriculture, or training of specialists to serve farmers in certain areas such as farm management, pest and weed control, and fertilizer and feed services. This type of training program will require the cooperation of two or more of our present vocational education services.

In like manner, training in certain specialized services related to homemaking, such as household help, dieticians, child-care specialists, and certain other occupations, may be offered best by the area vocational school.

Under the present federal vocational education acts, federal funds are not available for the support of training in certain occupations. In projecting the program of vocational education in Kentucky, it is contemplated that some of these programs may be conducted best in the area vocational schools. For example, training for office occupations is now being done in the area schools.

Vocational education in Kentucky has accepted the responsibility for training for occupations below the professional level, and it is implementing these training programs as fast as funds and facilities will permit. Descriptions of two of the most recent programs follow.

AREA REDEVELOPMENT PROGRAM

Under the Area Redevelopment Act passed by Congress in 1961, 24 training programs with 466 persons enrolled are in operation or have just been completed in the state. These programs range from 2 to 16 weeks in length. They are organized and administered by the area vocational schools, and the facilities of the area school are used insofar as possible. If the area school facilities are not adequate or available, facilities are rented, or the training is done in the plants where employment is expected. In all instances, the area vocational school director is responsible for the supervision of the instruction and for the administration of the program. Since 84 of Kentucky's 120 counties are eligible for training programs under this act, this program is expected to expand during the next 2 years. Thirteen applications for training were pending approval as of September 15, 1962.

Manpower Development and Training Program

The Manpower Development and Training Program, under legislation passed by Congress in 1962, will be in operation in the state as soon as approval of programs can be obtained. The demand for training under this program will far exceed what the funds available will support. This training program, too, is being operated through the area vocational schools, and many of the departments in the schools will operate for two or three shifts per day. The regular day shift will be kept available for the students enrolled in the regular vocational program, and the balance of the day and evening will be used for the Area Redevelopment and the Manpower Development and Training programs.

These programs, plus any subsequent requests for training, show clearly that vocational programs must be flexible to meet the many and varied training needs of business and industry. The area vocational school approach seems to be the best approach in Kentucky toward meeting these training needs.

XI. The Organization, Function, and Objectives of the Industrial Education Centers of North Carolina

BY IVAN E. VALENTINE[1]

Introduction

North Carolina's system of vocational education envisions the maximum utilization of human and natural resources. The chief institution in the system, aside from the high school, is the Industrial Education Center, which is designed to prepare people for the occupational needs of industry. The Industrial Education Center is not a secondary school; it is primarily a postsecondary school. But it serves the vocational training needs of the state's people and industries at whatever level. Indeed, it is a part of the state's program for industrial expansion.

A primary purpose of the center is to provide post-high-school technical-vocational training for qualified high school graduates. An equally important purpose is to provide needed training, based on occupational surveys, to employed or unemployed adults and out-of-school youth who need to acquire skills or new skills or to upgrade their present skills and knowledge in order to meet the demands of present-day industry. Much of this kind of training is for the unemployed and the underemployed. A third purpose of the center is to offer preemployment training to selected high school seniors enrolled in high schools that do not provide such training. This, of course, is a service of particular value to the smaller high schools. The center, therefore, offers training opportunities in technical and trade skills, agricultural technology, distributive education, health education, and homemaking for both men and women.

The system of Industrial Education Centers in North Carolina is now 3 years old. There are 20 centers in operation, and the number of students served had gone from 18,000 in 1959-60 to 22,000 in 1960-61 to 30,000 in 1961-62. The ultimate intent is to have these centers so strategically located as best to serve the needs of industry on an area basis and, where possible, located within commuting distance of all eligible trainees. With this in mind, extension units have been organized by several centers in the larger areas. The extension units are administered and supervised by the parent centers. There is always the possibility, however, that a unit may develop into a center and come under its own jurisdiction. The whole system of centers is shown in the map on the following page. No post-high-school technical training is done at the extension units; such training is done only at the centers themselves. The units concentrate on training high school seniors and others in preemployment courses and on training unemployed and employed adults and out-of-school youth in skills and new skills. They give particular attention to training for the needs of new industry.

High School Vocational Program

As in other states, the usual reimbursable vocational training programs may be offered by those secondary schools of North Carolina that can qualify. The traditional programs in homemaking and agricultural education are offered in the majority of high schools, large and small. Distributive education and industrial cooperative training programs are offered in a substantial number of high schools on a part-time basis for selected juniors and seniors. A very limited number of trade programs are offered, and then only in the larger high schools. As already noted, the Industrial Education Centers offer the day trade vocational preemployment programs to regular high school seniors, selected on a limited basis. North Carolina offers no technical training to high school students. Some adult education is conducted on a limited basis in the evening programs of the secondary schools, but most of the adult education is taught in the Industrial Education Centers and their units.

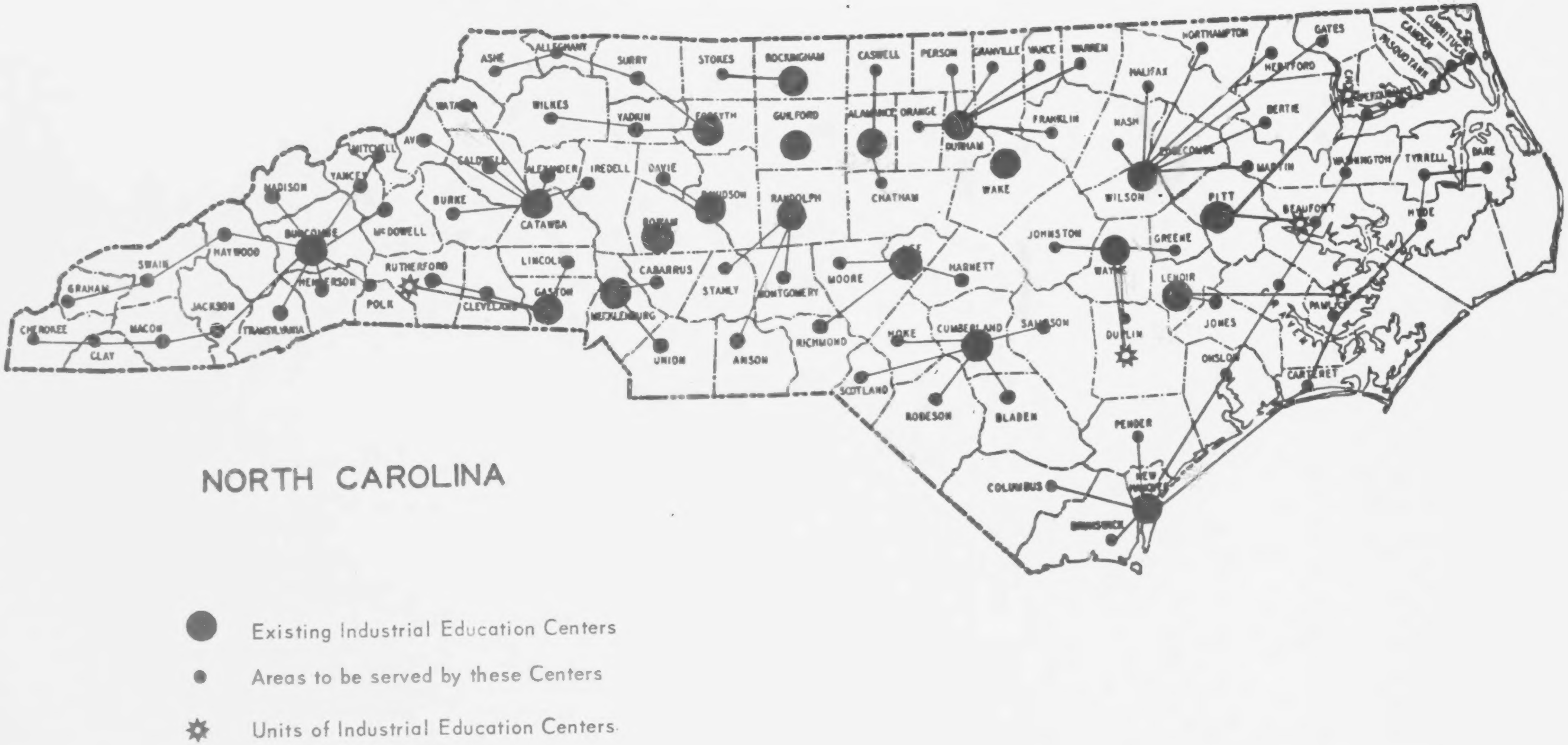
Other Institutions Offering Technician Training

There is in operation one technical institute, a division of North Carolina State College, that provides addi-

---

[1] Coordinator, Industrial Education Centers, North Carolina Department of Public Instruction.

LOCATIONS OF EXISTING INDUSTRIAL EDUCATION CENTERS AND THEIR RESPECTIVE UNITS


NORTH CAROLINA
Existing Industrial Education Centers
Areas to be served by these Centers
Units of Industrial Education Centers
CHEROKEE
CLAY
GRAHAM
SWAIN
MACON
JACKSON
HAYWOOD
TRANSYLVANIA
MADISON
BUNCOMBE
HENDERSON
YANCEY
MITCHELL
AVERY
McDOWELL
POLK
RUTHERFORD
CLEVELAND
WATAUGA
ASHE
ALLEGHANY
WILKES
CALDWELL
BURKE
ALEXANDER
CATAWBA
LINCOLN
GASTON
IREDELL
SURRY
YADKIN
DAVIE
ROWAN
CABARRUS
MECKLENBURG
UNION
STOKES
FORSYTH
DAVIDSON
STANLY
ANSON
ROCKINGHAM
GUILFORD
RANDOLPH
MONTGOMERY
RICHMOND
CASWELL
ALAMANCE
ORANGE
CHATHAM
MOORE
SCOTLAND
PERSON
GRANVILLE
VANCE
WARREN
DURHAM
WAKE
FRANKLIN
HARNETT
HOKE
CUMBERLAND
ROBESON
SAMPSON
BLADEN
COLUMBUS
BRUNSWICK
NEW HANOVER
PENDER
DUPLIN
JOHNSTON
WAYNE
WILSON
NASH
HALIFAX
NORTHAMPTON
EDGECOMBE
GREENE
LENOIR
JONES
ONSLOW
PITT
MARTIN
BERTIE
HERTFORD
GATES
CHOWAN
PERQUIMANS
PASQUOTANK
CAMDEN
CURRITUCK
WASHINGTON
TYRRELL
DARE
HYDE
BEAUFORT
PAMLICO
CRAVEN
CARTERET

tional technical offerings for the citizens of this state. There are a number of private institutions in the state that offer training opportunities in business education, cosmetology, and medical technology. Private institutions that offer technical education, however, are very limited and by no means meet the training needs of the state. Currently there are 58 institutions of higher learning in North Carolina; of this number, 17 are publicly financed, and 41 are privately financed. The state has 21 junior colleges; 5 of these are publicly financed, and 16 are privately financed. The junior colleges are academically oriented and do not offer technical or vocational education.

Apprenticeship Training

There is very little apprenticeship training carried on in North Carolina at the present time. Of the 3,000 indentured apprentices in the state in 1961, 650 were enrolled in related apprenticeship classes through the Vocational Education Department. However, the rapid growth of industry in the state is expected to increase the demand for such training. Furthermore, it is expected that the presence of the centers, with their facilities, will encourage both labor and management in the smaller industries to promote more apprenticeship training than they have had. By design, apprenticeship-related instruction is conducted by the Industrial Education Centers, rather than by the high schools.

Organization and Administration of the State System

The State Board of Education also acts as the State Board of Vocational Education. It functions in the vocational area through one of its appointed committees, the State Committee for Vocational Education. The general supervision and administration of the free public school system is invested in the State Board of Education, consisting of the Lieutenant Governor, the State Treasurer, the State Superintendent of Public Instruction, and 10 members appointed by the Governor subject to confirmation by the General Assembly in joint session. Of the 10 appointive members, 8 represent their respective educational districts, and 2 are members-at-large. The appointive members serve for a term of 8 years and in four classes, as provided in the Constitution. Appointments to fill vacancies for an unexpired term can be made by the Governor and are not subject to confirmation by the General Assembly.

The Division of Vocational Education is a part of the State Department of Public Instruction, operating under the State Superintendent of Public Instruction. The Superintendent of Public Instruction is the administrative head of the public school system and is secretary of the Board. The State Superintendent is elected by popular vote for a four-year term. The State Committee for Vocational Education is responsible for the planning, promotion, and development of all vocational education, and the State Director of Vocational Education is responsible for its administration and supervision.

Industrial Education Centers

Each Industrial Education Center (and its extension unit or units) is assigned to the district or administrative unit, either city or county, in which the center is located. It is administered by the superintendent of schools and the board of education of the administrative unit. Each Industrial Education Center is under the supervision of a director who is administratively responsible to the superintendent of schools and the board of education of the administrative unit. Where other administrative units are involved, the director must work with them concerning fiscal and other matters. Even though an Industrial Education Center and its extension units serve several school districts (they serve from 1 to 16 counties depending upon the density of the population of the area), the responsibility for administration and supervision of the center is still that of the administrative unit where the center is located.

FACILITIES

Plant and buildings, including shop, laboratory, library, and classroom space suitable for the special training to be done in the Industrial Education Centers, must be provided by the local administrative units at a location preferably apart from the existing high school facilities and reasonably accessible to all potential students. Instructional equipment is provided entirely by state and federal funds. All facilities must be approved by the State Board of Education and must meet the standards outlined by the Division of School Planning of the Department of Public Instruction. In planning buildings, the center shall place emphasis primarily on classroom, laboratory, and shop space for the specialized equipment as needed for instruction.

The Industrial Education Centers do not provide dormitories or cafeterias because it is intended that centers and extension units should be located within commuting distance of most potential students of the state, and they do not provide facilities for organized extracurricular activities since none are included in the center program.

FINANCING

The cost of all buildings for a center or an extension unit is the responsibility of the local administrative unit in which the buildings are located. One-half of a center's operating cost is the responsibility of the administrative unit, and one-half is that of the state. In North Carolina, the proportionate cost for vocational education is approximately $5 of state and local funds to every $1 of federal assistance. The state participates in the National Defense Education Act, Title VIII, under which federal funds are available on a matching basis, and it has received reallotted funds each year for equipment. The federal funds and state funds thus made available have provided the 20 centers and their extension units with the finest equipment for laboratories and shops that can be found anywhere in the nation.

The average operative cost to the local administrative units for their share is $20,000 per year. The counties in which the Industrial Education Centers are located are responsible for providing the required tax receipts to cover this cost, but currently, there is no center with which another county is fully cooperating in providing facilities or one-half of the operating cost.

STUDENT SELECTION AND FLEXIBILITY OF THE PROGRAM

All applicants to centers for preemployment and technician training are given the General Aptitude Test Battery by the Employment Security Commission, and they must complete the Employment Security entrance checklist as required by the State Board Cooperative Agreement with the Employment Security Commission. The General Aptitude Test Battery is supplemented by the Differential Aptitude Test and other vocational entrance tests for all individuals seeking entrance into the Industrial Education Center program. All students receive individual counseling and guidance services before they are admitted to the program.

All full-time curriculum students must complete the above-mentioned battery of tests before they can be considered as applicants. Adults, school dropouts, the unemployed, and the underemployed are required to take the General Aptitude Test Battery if they are enrolling in preemployment training. Individuals enrolling in evening extension classes in technical and vocational education are not required to complete the testing program. Counseling services are provided for all students regardless of their classification. The Employment Security Commission administers only the General Aptitude Test Battery, and the state makes use of the Commission's services for placement. The full responsibility for testing, guidance, admission, placement, and follow-up studies rests with the director and his staff.

The Industrial Education Center program offers opportunities for both vocational and technical training; it is geared to meet the needs of out-of-school post-high-school youth and adults for such training. All courses, therefore, are terminal in nature, and they do not lead to a baccalaureate degree. Incidentally, however, some colleges and universities may grant credit for work done in certain areas, based on examination. All the curricula offered stress mathematics, physics, chemistry, technical writing, and other general education courses that are required of students who qualify as candidates for the state examination in a trade or technology, and in which examinations must be passed to qualify students for a State Board of Education diploma. Flexibility built into each curriculum makes it possible for a student to become employable at various levels of training, in the event he should not be able to complete the program. If a certain curriculum does not interest a student, he may, with the help and approval of the guidance counselor, transfer to another curriculum more in keeping with his capabilities and interests.

About 50 percent of the enrollment in centers is made up of adults attending part time. The centers operate from 7 a.m. to 10:30 p.m., 5 days a week, 12 months a year, so that training for adults can be conducted during nonworking hours.

Since the entire system is publicly supported, no tuition is charged, but an instructional fee of $7.50 per month is charged, and students are required to purchase their own texts.

INSTRUCTIONAL STAFF AND INSTRUCTION

All teachers in vocational and technical programs must possess competence in the trade or technology that they teach. Basically, each teacher must have had 3 years of experience in industry or 5 years above the apprenticeship level in the field he teaches. Those individuals teaching in the technical program must possess a bachelor's degree and must have had experience in industry within the past 5 years.

Teacher training activities are carried on presently at North Carolina State College. From now on, there will be offered a leadership development conference each summer for 25 teachers selected as potential leaders in the field of industrial and technical education.

A Curriculum Materials Laboratory at the state level develops all of the instructional materials for all areas in order to maintain uniform standards of instruction. The laboratory evaluates and recommends the materials of all types to be used by the individual teacher in each center for all curricula.

GUIDANCE SERVICES

Each Industrial Education Center has a competent guidance counselor, who must have a master's degree in guidance, and who devotes all of his time to guidance and counseling activities. Each person enrolling in technical education in a center must provide a high school transcript or a high school diploma equivalency score. Students are not admitted into technical training unless they can prove their capacity to succeed in technical education.

ADVISORY AND OTHER COMMITTEES

Each administrative unit appoints an advisory committee for its Industrial Education Center. The committee is composed of representative leaders from industry, education, and other public interests. It serves as a consultant group; it has no administrative functions. This general advisory committee appoints craft committees, which work very closely with the director of the center in planning, developing, and promoting the specific curricula offered at the center.

The use of civic groups and civic organizations has contributed much to the success of the Industrial Education Center program, but more public relations activities are needed. Currently, there are being developed two 15-minute films in color, explaining the objectives and opportunities in vocational and technical education in North Carolina. These films, in addition to one made last year and such printed material as is available, will inform potential students and other interested citizens of the availability of training carried on in the Industrial Education Center program.

Surveys and Manpower Study

The curricula offered in each center are based on the needs of local industry, and they are shaped accordingly. The manpower needs for specific areas of the state are determined by a statewide study. The study is a continuous one, conducted on a statewide basis. In addition, the local directors and consultant committees of the centers may make yearly surveys to supplement the findings of the statewide study in their respective areas. According to a recent manpower study, North Carolina must train over 6,000 technicians and 20,000 skilled craftsmen during the next 3 years. This training will be offered to the individuals who qualify through the Industrial Education Center system.

Success of Centers

The growth of the Industrial Education Centers over the first 3 years has been phenomenal. We have observed the increase in enrollment from 18,000 the first year to 30,000 the third year. Local administrative units have already invested over $13 million in facilities for the centers. During the next biennium, state funds for equipment, instruction, and operating costs will amount to $10.2 million.

Technician training thrives in North Carolina because of the job opportunities available to graduates in the leading electronics and the machine industries of the state. Many of the graduates leave the state and seek employment in other neighboring states, but so do college graduates. The post-high-school vocational-technical program also provides training for mature adults, employed or underemployed, and provides them with the salable skills needed for the industrial growth of the state.

The Industrial Education Centers are a part of public education in North Carolina. They have gained status and dignity during the 3 short years since their inception. Increasingly, industries are looking to the centers for highly skilled technicians and trained craftsmen as well as for updating the skills of their employees.

Strengthening and Projecting the Program

Of course, there are problems to be overcome, due to the newness of the program and the magnitude of the task. The need for training is great and is growing rapidly. There is a constant shortage of qualified teachers, which will be overcome in time through good teacher training programs, perhaps both in residence and on the job.

Immediate plans for the future provide for expanding the data-processing curriculum and the mechanical technology curriculum. The nucleonics technology curriculum will be offered this next year.

There is a committee study under way at the present time to consider modifying the curricula of the Industrial Education Center to include courses in communications, social science, and the more cultural areas, and to turn the center into a public community college. Curricula offered would include college courses in addition to vocational and technical courses.

[Since the above was written, the State Legislature has passed a community college law providing for a statewide system of public community colleges, technical institutes, and industrial education centers to be supervised by a Division of Community Colleges as a part of the State Department of Public Instruction. The immediate plan envisions 14 community colleges, 10 technical institutes, and 10 industrial education centers. All of these institutions are to be comprehensive in character. — Editor]

The Industrial Education Center program has the sincere interest of all professional educators, industrialists, laymen, and citizens of the state. It has been called the workingman's university. A most important factor in the development of the program has been the keen interest and financial support given by the Advisory Budget Commission and the State Legislature. The Governor has participated actively in promoting the development of the program.

The further expansion of the program will have a tremendous impact on the socioeconomic standing of the citizens of this geographical area. Industrialization of the southern region of the United States will depend on the further development of the area school, not only in North Carolina, but also in all the other states in this region.

PRECEDING PAGE BLANK-NOT FILMED

XII. Vocational Education in California

BY WESLEY P. SMITH[1]

Within 4 years following statehood, California began to plan, to design, and to create opportunities for its youth and adults to obtain essential occupational skill and knowledge. From 1854, when mechanics in San Francisco made plans for self-improvement and education in the industrial occupations then existing, until 1962, when some 565,000 persons were enrolled in occupation-centered curriculums provided by the public schools, progress toward occupational proficiency through systematic patterns of vocational instruction has been steady, widespread, and successful.

The growth and characteristics of vocational education in California have been influenced significantly by the state served and by the organization of the public school system. Adequate understanding of vocational education in California, therefore, necessitates general comprehension of the state and its total school system. The following descriptive statements are intended to provide such a background.

The State of California

One hundred and nine years after admission to the Union, California has become the most populous state. For at least the past 15 years California has been adding to its total population an average of some 500,000 persons each year, and the indications are that this rate of increase will continue. California is a large state geographically. Third in size among the states, it is 1,000 miles long and varies from 150 to 375 miles in width. It comprises 158,693 square miles of area distinguished by great contrasts in topography and climate.

With approximately 17,000,000 people, California has a civilian work force of nearly 7,000,000. Within the past few years the state's economy has changed from an agricultural to an industrial emphasis. Still maintaining its position as the leading state in value of its total farm income, California's industrial complex has assumed a production capacity of vast proportions. Its business activities in transportation, wholesale and retail trade, finance, insurance, real estate, and personal services also have eminence in the world.

Public School System

The public school system in California spans educational levels from kindergarten through the 14th grade and enrolls more than four million persons in the following categories:

Kindergarten through the 8th grade	2,550,000
High school, grades 9-12	775,000
Junior college, grades 13-14	150,000
Classes for adults	550,000

The public school system embraces 1,686 separate school districts, each with its own elected board of trustees:

Elementary school districts (elementary schools only)	1,316	(4,798 schools)
High school districts (high schools only)	221	(589 schools)
Separate junior college districts (junior colleges only)	30	(67 colleges)
Unified (consolidated) school districts (elementary schools, high schools, and junior colleges)	119	

TOTAL COST

The 1960 operating expenses of the public schools were $1,372,560,902. In addition to these annual operational costs, the state, in six separate elections since 1940, has voted $1,155,000,000 in bonds to assist in the construction of schools in the least financially able districts. In June 1960 the total bonded indebtedness of California's public schools, in addition to the outstanding state bonds for school construction, was $1,835,060,351.

STATE FINANCIAL SUPPORT OF SCHOOLS

California's Constitution has long recognized the state's responsibility for assisting its local, autonomous school districts by sharing the costs of instruction. Current provisions in the Constitution provide for a "general school fund" whose size is determined by total school enrollments. Approximately $200 is set aside annually for each full-time student or equivalent — elementary, secondary, junior college, or adult — and each school district is paid at least $125 per student in attendance each year. An equalization provision makes possible higher payments to the poorer school districts. Currently the "state aid" approximates a little less than 50 percent of the total instructional costs, not including capital outlay.

---

[1] State Director of Vocational Education, California Department of Education.

Mandatory School Attendance

California laws require full-time school attendance through high school graduation or until the age of 18. At the age of 16, however, part-time attendance is permitted at the rate of 3 hours per day if the young person is unemployed or 4 hours per week if employed.

Free Tuition

No tuition is charged for any segment of instruction in the public schools. Through high school (kindergarten through the 12th grade), all instructional supplies, including textbooks, are furnished free of charge to all students. In the 13th and 14th grades and in classes for adults, however, books, paper, and similar instructional essentials must be furnished by students. Eligibility for enrollment at any grade level is dependent upon residence within the respective school district boundaries. Through the use of interdistrict attendance agreements, students with special needs may cross district boundary lines in order to participate in specialized, area-type courses or curriculums.

Common Grade-Level Organization

Grade-level organization in the public school system normally is divided as follows:

K - 6	elementary
7 - 9	junior high
10 - 12	senior high
13 - 14	junior college

A small number of school districts are organized under the K-8 and 9-12 levels, but long-term trend has been toward the grade-level breaks indicated above. In some instances there are "intermediate" schools consisting of grades 6-7-8 as a separate school organization.

School Law

The public schools operate under laws passed by the State Legislature. These laws are assembled in an "Education Code" that contains all permissible and all required conduct of local school districts, their boards of trustees, their administrators, their teachers, and their students.

State Board of Education

The determination of the general policies for the government of the public schools, in addition to the statutory policies, is a function of the State Board of Education, a group of 10 citizens appointed for four-year terms by the Governor with the consent of two-thirds of the Senate. There exist no statutory qualifications for State Board members. Traditionally, the Board is composed of lay citizens not connected with schools or colleges.

Rules and Regulations

The rules and regulations established by the State Board of Education are contained as Title V, California Administrative Code. These rules and regulations have the effect of law upon the operation of all aspects of the public school system.

State Superintendent of Public Instruction

Administration of statutory policies and of State Board of Education policies is vested in the Superintendent of Public Instruction, elected on a nonpartisan basis by the people of the state at four-year intervals.

State Department of Education

The State Department of Education has been created by statutes for the purpose of assisting the Superintendent of Public Instruction and the State Board of Education in administering pertinent laws, rules, and regulations. To a large extent, the administrative function of the State Department of Education is performed by means of professional direction and leadership rather than by direct intervention in local school district operations and administration.

The Department of Education is composed of six divisions, each with an assigned area of responsibility:

1. Division of Departmental Administration (the "housekeeping" unit that deals with departmental budgets, personnel, research, etc.)
2. Division of Public School Administration (the unit responsible for disbursement of the School Fund to local school districts, school construction, surplus property distribution, school districting, etc.)
3. Division of Instruction (containing all units responsible for curriculum, quality of instruction, etc.)
4. Division of Higher Education (containing all units responsible for post-high-school activities of the public schools, accreditation, teacher licensure, etc.)
5. Division of Special Schools and Services (the unit responsible for state-operated resident schools for the deaf and blind, vocational rehabilitation, and special education for the physically and mentally handicapped)
6. Division of Libraries (the State Library, attached to the Department of Education)

County Education Offices

In each of California's 58 counties there exists a "county schools" unit headed by a county superintendent of schools. These units and personnel function in an intermediary role between the State Superintendent of Public Instruction and the local school districts. Services provided include curriculum development, specialized subject matter consultation, business affairs, and records. These services are supported mainly by the state, but with some financial assistance by the respective counties.

MANDATORY SUBJECT MATTER

Statutory requirements at the elementary school level include reading, writing, spelling, and arithmetic beginning in the first grade. Not later than the fourth grade, instruction must begin in English, geography, and history. Beginning not later than grade 6, instruction must be given in civics, a foreign language, natural science, and health. At least 50 percent of the instructional time must be devoted to reading, writing, language study, spelling, arithmetic, and civics.

General requirements for high schools stipulate that there must be included in grades 7 to 12 the following:

1. Five years of English
2. Twenty semester periods of American history
3. Twenty semester periods of world history and world geography
4. Ten semester periods of American government
5. Courses in the Constitution of the United States
6. Courses in fire prevention
7. Courses in physical education
8. Instruction in public safety and accident prevention
9. Instruction in manners and morals
10. Instruction on the nature of alcohol and narcotics
11. Driver education
12. Instruction in the principles and practice of first aid

HIGHER EDUCATION

Not a part of the "public school system," but a significant part of publicly owned and tuition-free educational institutions, is the extensive availability of separate units of the University of California, with 7 major campuses, and the units of the State College System, with 15 campuses.

The University of California, enrolling 60,000 students, is administered and controlled by a Board of Regents, appointed by the Governor.

The State College System, enrolling 75,000 students, is separately administered by a Board of Trustees, appointed by the Governor.

All units of both systems are financed directly through grants by the State Legislature. Tuition is charged only to nonstate residents. The functions of the two types of institutions are differentiated by law, and among such differences is the allocation to the university system of the sole right for graduate work beyond the master's degree level.

SIZE OF SCHOOLS

Enrollments in individual schools vary widely, but the current averages approximate the following:

Elementary	300- 450
Junior high	800-1300
Senior high	1300-1800
Junior college	1600-2200

CERTIFICATION OF TEACHERS

All persons who render professional services within the public schools must be licensed by the state. The licensure system recognizes four general areas of such professional services: instruction, specialized nonteaching services, supervision, and administration.

Collegiate institutions preparing students for these professional services are accredited by the State Board of Education and by the regional accrediting association. The licensure system recognizes the variety of professional services and the variety of preparation essential to render such services. Vocational education services, as all other specialized services, are integrated within the single, total licensure system. With few exceptions, one year beyond the baccalaureate level is required of all regular teachers.

LENGTH OF SCHOOL YEAR

The public schools in California must be in session a minimum of 175 days each year.

SUMMER SCHOOL SESSIONS

Many elementary schools, the majority of high school districts, and most junior colleges operate a summer school program of approximately 6 weeks. In the summer of 1961, 195 high school districts alone provided programs for 226,546 students, nearly 30 percent of the number of students enrolled in the regular sessions.

At an increasing rate, the summer session programs permit youth to broaden their subject matter experience, in addition to receiving remedial assistance in certain subject-matter areas. In the summer of 1961, for example, there were more than 100,000 enrollments in the applied arts of business, homemaking, and industrial education.

ACCREDITATION

A program of accreditation for high schools and junior colleges exists within the state. The Western Association of Schools and Colleges, a successor to the Western College Association, has overall accreditation responsibilities. Special units within this organization undertake the responsibilities for high school, junior college, and four-year college accreditation. The policy boards for accreditation of high schools and junior colleges contain representation from the State Department of Education. In addition, each "visiting committee" has, by policy, a representative from the State Department of Education.

Accreditation for teacher education purposes, including vocational education, is conducted through the means of a special Committee on Accreditation, created and used by the State Board of Education. This committee contains within its membership the State Director of Vocational Education.

The Program of Vocational Education

In 1960 a Citizens' Advisory Committee, created by the California Legislature to study the public schools, identified the desired goals of public education and included among these goals the following statement:

> The strength of our culture depends upon individuals who are competent to fulfill the essential occupations. It is an important function of the schools to develop the competence necessary to carry on the jobs of society — the jobs of the work world, in the cultural world, in the physical world, in engineering, in merchandising, in medicine, in law, in teaching, and in all the other various areas.

This avowed purpose of the public schools in California has long been accepted and endorsed. The degree of attainment, however, has varied from school to school and from year to year. Although the ultimate accomplishment has not been universal, the achievements have been consistent and significant.

DEFINITION

Vocational education, as a *general term,* is considered in California to be that part of the total program of education that deals specifically and in an organized, systematic manner with the acquisition of skills, understandings, attitudes, and abilities that are necessary for entry upon and successful progress within an occupation. For certain occupations such attainment requires years of collegiate preparation. Other occupations may demand far less formalized training.

Vocational education, as a *descriptive term* in California, applies solely to the preparation for occupations that can be achieved through the high schools, the junior colleges, and the adult classes that are a part of California's public school system.

AIM

Vocational education has as its controlling purpose the preparation of persons for useful employment. It is intended to serve the needs of two distinct groups of people — those who are already employed and those who are preparing for initial employment.

SCOPE

Vocational education encompasses all the various occupations in the fields of agriculture, homemaking, business, distributive, industry, public service, trade, and technical areas.

WHERE OFFERED

Vocational education is provided to young persons who are enrolled full time in regular classes in high schools and junior colleges. It is also provided on a part-time basis to out-of-school youth and adults, employed or unemployed, in adult education or extension classes.

ESSENTIAL CHARACTERISTICS

Vocational education is always specific. To be successful, a program of vocational education should have the following characteristics:

1. The program is directly related to employment opportunities.
2. The content of the courses is based upon periodic analyses of the occupations for which the training is being given.
3. The courses for a specific occupation are established and maintained with the advice and cooperation of the various occupational groups concerned.
4. The facilities and equipment used in instruction are comparable to those found in the particular occupation.
5. The conditions under which instruction is given duplicate as nearly as possible desirable conditions in the occupation itself and at the same time provide effective learning situations.
6. The length of the teaching periods and the total hours of instruction are determined by the requirements of the occupation and the needs of the students.
7. Training in a particular occupation or occupational area is carried to the point of developing marketable skills, abilities, understandings, attitudes, work habits, and appreciations sufficient to enable the trainee to obtain and hold a job.
8. Classes are scheduled at hours and during seasons convenient to the enrollees.
9. Instruction is offered only to persons who want, need, and can profit from it occupationally.
10. The teachers are competent in the occupation for which they are giving instruction and possess adequate professional qualifications for teaching.
11. Vocational guidance, including effective followup of all students who finish or drop out of a course, is an integral and continuing part of the program.
12. Continuous research is an integral part of the program.

AN INTEGRAL PART OF THE TOTAL EDUCATION PROGRAM

Vocational education is not considered to be something apart from the total program of education. It does not take the place of general education. Instead, it supplements and enhances general education for students who want training for a chosen occupation. Vocational education is but a part — an important part — of a well-balanced, total school program. It is part of a well-rounded program of studies aimed at developing competent workers and recognizing that the American worker must also be competent economically, socially, emotionally, physically, intellectually, and civically.

Administration

Vocational education, just as all other phases of the total program of public school education in California, is organized, conducted, and administered by local school districts in conformance with the provisions of the Education Code and the Rules and Regulations of the State Board of Education.

Federal Relationships

The development of certain types of vocational education has long been the concern of the federal government. Beginning in 1917 with the passage of the Smith-Hughes Act, Congress has approved a series of supportive measures for the further development of vocational education. All federal assistance has been based upon two fundamental ideas: (1) that vocational education is in the national interest and is essential to the national welfare, and (2) that federal funds are necessary to stimulate and assist the states in making adequate provisions for such training.

Continuously since 1917, with the acceptance by the California Legislature of federal aid for certain types of vocational education, California public schools have been recipients of both federal and state funds appropriated for certain specific patterns of occupational preparation. Although influenced by federal aid for certain types of vocational education, California's program of vocational education has not been limited to federally aided phases of vocational instruction.

At the Junior High School Level

It should be pointed out that the junior high school becomes the initial opportunity for boys and girls to experience instruction in applied arts subject matter on a departmentalized basis. The characteristic California junior high school requires all boys to enroll in industrial arts for from 1 to 2 years, and all girls to enroll in nonvocational homemaking education for a similar period of time. Metropolitan junior high schools often provide considerable offerings in "general agriculture," and, at an increasing rate, more and more junior high schools are providing for the learning of basic business skills.

No vocational education, as strictly defined, is offered at the junior high school level, except that in school systems where vocational courses in agriculture and home economics are offered in the senior high school to which the students will matriculate, these subjects may be made available in the ninth year.

At the High School Level

California high schools are comprehensive by nature and in composition. Futhermore, long-prevailing policy and philosophy indicate that the public high schools shall enroll and serve the needs of all youth regardless of color, creed, ethnic origin, sex, or occupational goal. There exist, therefore, no specialized "trade" or "vocational" high schools in California. Early attempts to operate and maintain specialized high schools were unsuccessful.

The degree to which California high schools provide for vocational education is determined by the comprehensiveness of each institution. Almost every high school serving a rural area offers vocational instruction in agriculture. Every high school provides for some type of vocational instruction serving the office occupations. Every high school offers some type of industrial education. Every high school provides homemaking education.

The functional vocational nature of these programs varies considerably. One measurement of the vocational nature of such programs is indicated by the number of high schools that offer programs that qualify under the federal vocational acts. The following breakdown for 1961 provides such a measurement:

Vocational Education	Number of High Schools	Enrollment
Agriculture	208	13,924
Homemaking	252	50,000
Distributive	38	829
Trade and industrial	67	5,238

Total effort in the provision of instruction in the applied arts is another measurement of service to occupational preparation. The following enrollment and percentage figures for 1961 classes not federally aided indicate the extent of these efforts:

General Education	Enrollment	Percent of Total High School Enrollment
Agriculture	21,000	2
Industrial arts	271,000	35
Business	250,000	33
Homemaking	155,000	20

It should be noted that the above tabulations represent enrollments in a single semester or a single year. The number of boys and girls who experience such instruction prior to graduation becomes much larger than the above figures indicate. For example, it is estimated that 87 percent of all high school students have enrolled in at least one semester of business education prior to leaving high school.

Any analysis or assessment of vocational instruction at the high school level must consider the following factors:

1. The extensive growth of junior colleges in California has influenced the degree of specificity in preparing high school youth for job entry. The availability of junior colleges has, without question, decreased the emphasis upon vocational education programs other

than in agriculture and homemaking education. As an increasing number and percentage of high school students enter junior colleges, it becomes convenient for them to delay specific preparation for job entry. This tendency is bolstered by the pressures upon the high school curriculum for more and more required courses. The tendency is further supported by the strategic ability of the junior college, serving a larger geographic and population area than the high school, to provide a wider array and a deeper emphasis of occupational curricula. The tendency is also supported by the axiom in vocational education that specific job preparation is best accomplished immediately prior to actual job entry.

2. The increasing subject matter requirements for high school graduation have provided decreasing opportunities for high school youth to enroll in nonrequired courses. Some of these increased requirements are of a legal nature, mandated by the State Legislature, such as driver education, an added year of social sciences, etc. Some other requirements are imposed by local boards of education, or dictated by parental pressures. The net result is always the same — less and less time within the high school period to enroll in nonrequired courses.

3. The increasing specificity of curriculum patterns designed for students intending to qualify for admission to post-high-school institutions has reduced to almost negligible amounts the options students enrolled in such patterns have for nonrequired subject matter.

4. Without question, the "postsputnik" urge for increasing the academic subject matter requirements in the public schools has invaded the thinking of curriculum designers, counselors, administrators, school board members, and parents. The insidious nature of this urge has had a detrimental effect upon the expansion of vocational education programs at the high school level.

5. The reluctance of vocational educators to design more modern curriculums for job entry has resulted in the necessity for nonvocational phases of the applied arts to fulfill the mission of occupational preparation. Traditional dependence upon vocational education standards suggested in the federal vocational education acts has impeded the development of occupational preparation patterns that vary from provisions in the State Plan for Vocational Education.

6. The relatively small size of the typical three-year high school, the lack of specific "invoices" for occupational preparation from employers, and the rising age level of employment are factors that combine to complicate the task of vocational education at the high school level. In short, it becomes a very difficult task to determine the desired nature of vocational education and to establish and conduct economical units of such instruction at the high school level.

7. Any natural inclinations to combine efforts and needs for vocational education on an area basis among groups of high schools are either hindered or thwarted by the presence of a junior college, which, by its very nature, is an "area" institution.

In no sense of the word should the amount of vocational preparation at the high school level be measured by that part which is eligible for federal aid through the State Plan for Vocational Education. In 1961, for example, 41,347 high school students in 565 high schools were enrolled in bookkeeping. Another 36,466 were enrolled in shorthand in 547 high schools. It cannot be ascertained how many of the 150,218 students enrolled in the first year of typing in 1961 were taking such a course for vocational purposes, but it is quite certain that the great majority of the 43,857 students enrolled in the second year of typing in 563 high schools were being vocationally trained. None of these occupationally centered courses were reimbursed from vocational education funds.

A considerable growth of "work experience education" has taken place in California high schools during the last 10 years. Nearly 50,000 are presently enrolled in such school-connected programs, the majority of which are vocationally oriented.

Then, too, in hundreds of California high schools advanced work in the "industrial arts" becomes vocational in nature and purpose. In certain instances, high school programs in vocational education are being conducted in a manner that matches all requirements for federal aid except for time requirements. These programs are designed for job entry in industrial, service, and distributive occupations, but never appear as statistical credits for vocational education under reporting procedures suggested by the United States Office of Education.

All this is not to say that there is sufficient attention being paid to providing vocational education at the high school level. There continues to be a dearth of such offerings in many schools. Neither can it be said, however, that little or no attention is being given to high school vocational education.

AT THE JUNIOR COLLEGE LEVEL

The California junior college was created more than 50 years ago for the purpose of placing some missing rungs in the educational ladder. It has proven to be a unique institution, and its popularity is universal. One of the significant reasons for its success and general favor is the function it assumes for vocational-technical education. This is a mission that was assigned to the junior college in California statutes many years ago, and it continues to be a significant purpose in more recently adopted statutes that determine the allocation of functions among all of the publicly supported, post-high-school, educational institutions of the state.

The state statutes prescribe that the "course of study for two-year junior colleges shall be designed to fit the needs of pupils of the thirteenth and fourteenth grades and may include courses of instruction designed to prepare for admission to the upper division of higher institutions of learning and such other courses of instruction designed to prepare persons for agricultural, commercial, homemaking, industrial, and other vocations. . . ."

Under a statutory "Master Plan for Higher Education" adopted in 1960, the assignment of responsibility to the public junior college includes "instruction through but not beyond the fourteenth grade level including, but not limited to, one or more of the following: (a) standard collegiate courses for transfer to higher institutions, (b) vocational-technical fields leading to employment, and (c) general, or liberal arts courses."

The junior college in California has long been recognized as the repository for a wide array of occupational preparation programs. Many of such programs are eligible for the receipt of federal-state funds for vocational education. Although post-high-school in nature, approved vocational education programs in junior colleges can meet all the requirements of the federal acts since such programs are not designed or conducted for baccalaureate degree purposes.

At least 25 percent of all enrollment, the course offering, the faculty, and the facilities of California junior colleges are devoted to occupation-oriented curriculums leading to immediate job placement or improvement of job performance. These vary from short, concentrated programs to the full two-year programs. They involve both men and women students, they are offered day and evening, and they cover all recognized occupational areas that can be prepared for in 2 or less years of post-high-school training.

All junior colleges are comprehensive in composition and purpose. A few, because of location, become somewhat specialized. Each provides for the acquisition of an Associate of Arts degree that requires the completion of 60 semester hours of course work, the majority of which is in the major area of study. Many occupational preparation areas lend themselves to the Associate of Arts degree program, especially such occupations as are of a technical or semiprofessional nature. Other occupational preparation programs are of such duration or such composition that they have no affinity or relationship to the Associate of Arts degree.

The junior colleges in California, with 67 now in operation and several others authorized, admit high school graduates or non-high-school graduates who can profit from the instruction offered. Tuition-free, the California junior college is intended to be a community institution. Enrollments in extension and/or adult classes exceed those of full-time day students.

The laws, policies, and traditions combine to preclude the development of any California junior college into a four-year institution. No California junior college has ever evolved into a four-year college.

The typical junior college offers a wide variety of business education curriculums, preparing youth and adults for the office, the service, and the distributive occupations. Preparation of technicians is a significant part of the curriculums. Programs in practical nursing, cosmetology, dental assisting, and electronic data processing operate side by side with training programs for machinists, auto mechanics, draftsmen, and police science.

Through a system of interdistrict agreements, some junior colleges specialize in certain occupational preparation programs; other junior colleges concentrate in different offerings. Covering a large geographical or population area at the outset, these interdistrict agreements permit enlarged regional or area training services.

In addition to the development of "area" vocational education programs at the junior college level, another type of "area" service is provided at an increasing rate by junior colleges for *high school* students. Again, through interdistrict and intradistrict arrangements, a junior college may make available its vocational education facilities for the use of 11th- and 12th-grade high school students, who are transported from the high schools to the central junior college facility for laboratory and/or shop experience in vocational education. This dual area usage of the junior college vocational education facilities provides for a wider variety of occupational preparation opportunities, for greater depth of specific training, for more extensive equipment, and for a more specialized staff than would be possible under other arrangements.

AT THE ADULT LEVEL

Classes for adults are maintained in connection with day or evening high schools and day or evening junior colleges, with 80 percent of the state's high school and junior college districts maintaining such programs in year-round operation. Classes for adults, as is the situation for other levels of the public school system, are jointly financed by state and local funds, are locally administered and controlled, and are tuition free. At any one time in the school year nearly 500,000 adults will be attending classes. In any one year more than a million enrollments will have taken place. At least 50 percent of all enrollments and course offerings are based upon occupational needs. Courses are designed to fit the needs of individuals within their own communities. They vary from highly sophisticated, scientific content for employed workers in technical occupations to basic skill development for the unemployed. The range is wide, and the offerings are extensive. Whenever classes for adults qualify under the federal acts for vocational education, excess costs are reimbursed from federal-state funds for vocational education in a manner similar to arrangements for all-day classes.

USE OF FEDERAL VOCATIONAL EDUCATION FUNDS

California has always made full use of federal funds available for vocational education. State-level appropriations originally matched federal funds on a dollar-for-dollar basis, but in recent years the increase in federal funds has been matched by a combination of state and local district funds. Currently the ratio in matching all federal allocations is approximately one-third state and two-thirds local.

In addition to the support of the state-level vocational education staff, federal funds are used to assist local school districts with the conduct of operating programs. This assistance is described as follows:

1. Reimbursement to the cooperating local school districts of not more than 50 percent of the excess costs that accrue to the development and operation of qualifying vocational education programs. Excess costs may consist of the following categories of expenditures.
    a. Salaries of teachers
    b. Salaries of coordinators, supervisors, or directors
    c. Travel expenses for above-mentioned staff members and for advisory committee members
2. Reimbursement to the cooperating local school districts of not more than 50 percent of the costs of equipment acquisitions.
3. Partial to full support of research and studies conducted at the local level.
4. Partial to full support of pilot or experimental programs of instruction.

Any school district meeting the minimum requirements included in the state plan for specific vocational education programs is eligible for reimbursement. There are individual formulas for the allocation of each segment of the funds, but local schools are not guaranteed specific sums. Maximums fixed by such formulas are never exceeded, but there are no minimums because of the policy to recognize all applications. When funds are not sufficient to honor the formula-producing allocations, a system of negative proration is used.

The detailed procedures of qualification vary according to the occupational categories, but the essential ingredients are as follows:

1. A written agreement is exchanged between the local school district and appropriate members of the vocational education staff in the State Department of Education.
2. The written agreement describes the extent or character of program to be conducted and includes a statement of acceptance of the provisions of the California Plan for Vocational Education.
3. A final written report is submitted at the conclusion of the program (end of year), giving accomplishments, certain statistical information, and qualifications of instructors.
4. A final certified application for payment is submitted.
5. Approval of the application for payment is made by an appropriate Department of Education staff member.

Allocations to local school districts, made at the conclusion of each school year, are keyed to the "teacher unit," although the factors of "excess cost" are included in each formula. In 1960-61 these formulas produced the following averages for instructional programs:

Full-Time Students	
Vocational education in agriculture	$1,000
Distributive education	650
Vocational homemaking education	700
Trade and industrial education	650
Part-Time Adult or Extension Classes	
Vocational homemaking education (per class)	$ 20
Trade and industrial education (per class)	140

The practice of reimbursement on the basis of 50 percent of excess costs is based upon the following theory. The state and the local school district share at approximately a 50-50 ratio the costs of instruction in *all* subject matter areas. It follows, therefore, that a similar ratio should exist in the support of vocational instruction. If the requirements for qualifying vocational instruction entail expenses beyond the normal costs of other class work, it is reasonable to expect that state and/or federal funds should be used to compensate for 50 percent of the additional instructional costs.

Other than for the National Defense Education Act Title VIII program, use of federal and/or state vocational education funds for equipment purchase has been generally discouraged.

VOCATIONAL GUIDANCE

The Department of Education contains a unit, identified as the Bureau of Pupil Personnel Services, that provides consultation, leadership, and supervision services for guidance and counseling. This unit was first formed to emphasize vocational guidance and occupational information, and it was financed through the use of vocational education funds. The services of the unit were later broadened, and vocational funds were withdrawn from its support. Today it performs as a department-wide service unit for all grade levels and in all areas of pupil personnel work, including vocational guidance.

Recognizing the extreme difficulty in developing currently authoritative occupational information, an arrangement has been made with the State Department of Employment whereby "occupational briefs" are widely and continually distributed to local school counselors. At present the series of such "occupational briefs" exceeds 300 separate descriptions. These briefs, based sometimes on statewide information, and at other times on regional or area needs, have general and practical usage within the schools.

The matter of adequate vocational guidance, however, continues to be a critical problem. With a current ratio of approximately 1 full-time counselor to 500 students at the high school level, together with the complexity of the task itself, a situation of inadequacy of occupational information and vocational guidance is quite evident. At present California high schools are reaching for a ratio of 1 counselor to 300 students. Even when this ratio is attained, the complete task of vocational guidance will remain unmet.

Advisory Committees

The use of local representative advisory committees is traditional and almost universal in all areas of vocational education — in agricultural, business and distributive, homemaking, and trade and technical education. Some advisory committees are continuing in nature; others are used for short durations of time. Some are general in nature; others are for specific purposes. Tested experience over many years of operation has demonstrated the value of representative local advisory committees. When properly conceived, organized, and used, they become indispensable to the successful conduct of local programs of vocational education.

Statewide advisory committees are also traditionally a part of normal operations. In most cases, however, such committees are appointed for specialized purposes and for short periods of time. In only a few instances are there any continuing statewide advisory committees. There has never existed, nor does there now, a general, statewide advisory committee for the total program of vocational education.

Cooperation With Other State Agencies

In full recognition that other governmental agencies have interest in and some shared responsibility for education and training, systematic means have been developed to foster communication and cooperation among them. Within the state, the Department of Industrial Relations contains units with legal responsibilities for the supervision of wages and hours in employment, of apprenticeship, and of laws affecting the employment of minors. The State Department of Employment has responsibilities for the recruitment, placement, and orderly deployment of the work force. Two interdepartmental committees, continuing in nature, assist in coordinating the activities of these governmental units. One such committee is identified as the Interdepartmental Committee on Youth Employment, composed of four representatives of each of the Departments of Education, Employment, and Industrial Relations. Another such device for communication and coordination is the Interdepartmental Committee on Skill Development. Each of these committees contains representation of the vocational education staff of the Department of Education.

There is a growing tendency within the program of vocational education to make full use of the specialized services of other governmental units. This "division of labor" seems desirable since the total task of anticipating training needs, recruitment of students, design of training patterns, training itself, placement, and followup becomes increasingly complicated. While locally operated vocational education programs have always assumed responsibility for such matters as determination of needs, recruitment, and placement, more and more dependence is being placed upon these kinds of services available through the State Department of Employment.

Preparation of Vocational Teachers

Insofar as possible, the responsibility for the preparation of teachers for vocational instruction has been allocated to the state university and the state colleges. In fact, all vocational teachers are prepared through participation of such institutions. In order to assist in this activity, and in order to maintain essential standards of quality in vocational teacher preparation, two devices are used:

1. A series of contractual agreements are made with teacher preparation institutions for the maintenance of specialized staff and services for vocational teacher preparation. These contractual agreements involve the use of vocational education funds for the support of excess costs involved.

2. Certain state vocational education staff members are assigned, both by location and by responsibility, to coordinate and assist in the teacher preparation process. Some of this service is performed by staff located at headquarters, and some by staff located on the campuses of the colleges.

Although the state vocational education staff has not abrogated its responsibility for teacher training, this function has been allocated more and more to the teacher education institutions. Through the use of detailed contractual agreements between the cooperating teacher education institutions and the State Board of Education, together with continual attention upon the accreditation process, satisfactory patterns of recruitment, selection, training, and placement have been attained.

In all cases, minimum requirements for vocational teacher competence, as delineated in the State Plan for Vocational Education, are recognized in certification requirements, in subject matter coverage, in practice teaching, and in occupational background. An essential, long-recognized, and uniformly accepted requisite for any vocational education teacher is subject matter competence. In certain areas such subject matter competence can be obtained only through years of occupational experience, as is the case in many of the trades. In other areas, a satisfactory depth of subject matter coverage in a college is acceptable, as in the case of certain phases of agricultural or homemaking education.

The State Vocational Education Staff

The professional staff assigned the state-level leadership and supervision of vocational education comprises an integral unit of the Division of Instruction in the State

Department of Education. It is organized into four units, designated as bureaus, with a bureau chief heading the functions of agricultural education, business education, homemaking education, and industrial education; collectively it is known as the Vocational Education Section. This staff operates under the general leadership of a State Director of Vocational Education, who reports to an Associate Superintendent of Public Instruction.

The vocational education staff is assigned responsibility for all areas of public school curriculums involving the applied arts. These include other than vocational education subject matter areas. For example, all phases of industrial education become the responsibility of the Bureau of Industrial Education, including industrial arts education, industrial technician education, preengineering education, as well as vocational industrial education. The vocational education staff, therefore, is supported by both federal vocational education funds and state funds. A consultant for industrial arts, for example, is supported exclusively by state funds. On the other hand, a supervisor of apprenticeship training is supported by both federal and state vocational education funds. The entire staff is in civil service status. Selection and screening is done by the state agency that performs such services for all state personnel.

The size of the state has influenced the decentralization of the total professional staff of some 60 persons. Branch offices are located in "regions" of the state so that services may be close to the operating programs and maximum travel economies may be obtained. In all cases the branch offices include staff members from the several bureaus.

The general organization of the vocational education staff is illustrated on the opposite page.

Vocational Education in Private Schools

Private schools of many types abound in California. At least 150 separate schools specialize in preparation for a wide array of occupations from commercial art, aircraft, barber, and business to photography, nursing, radio, secretarial, and watchmaking. For the most part, these schools serve post-high-school training needs at less than the baccalaureate level.

All private schools in California that award diplomas or certificates of achievement are subject to review and appraisal by a special unit in the State Department of Education. State licensure is not required. Thousands of persons receive occupational preparation through these private institutions each year.

Vocational Education in Business and Industry

Although it is difficult to measure the number of persons who are prepared for occupations through training programs conducted by business and industrial concerns, the significance of this contribution to vocational education in California requires that such programs be mentioned. During the past 20 years private business and industrial concerns have come to accept more and more responsibility for participating in and contributing to job preparation. In almost every such case, however, the training programs are keyed to and meshed with the programs of vocational education offered through the public schools.

Training and Retraining

Current emphasis upon training and retraining as a partial solution to the problem of unemployment requires a different educational approach. Although California's problem of unemployment is no less than that of most other states, the fact that it is no worse is due, to a large extent, to the long-existing, wide array of vocational education opportunities available to the work force in the state.

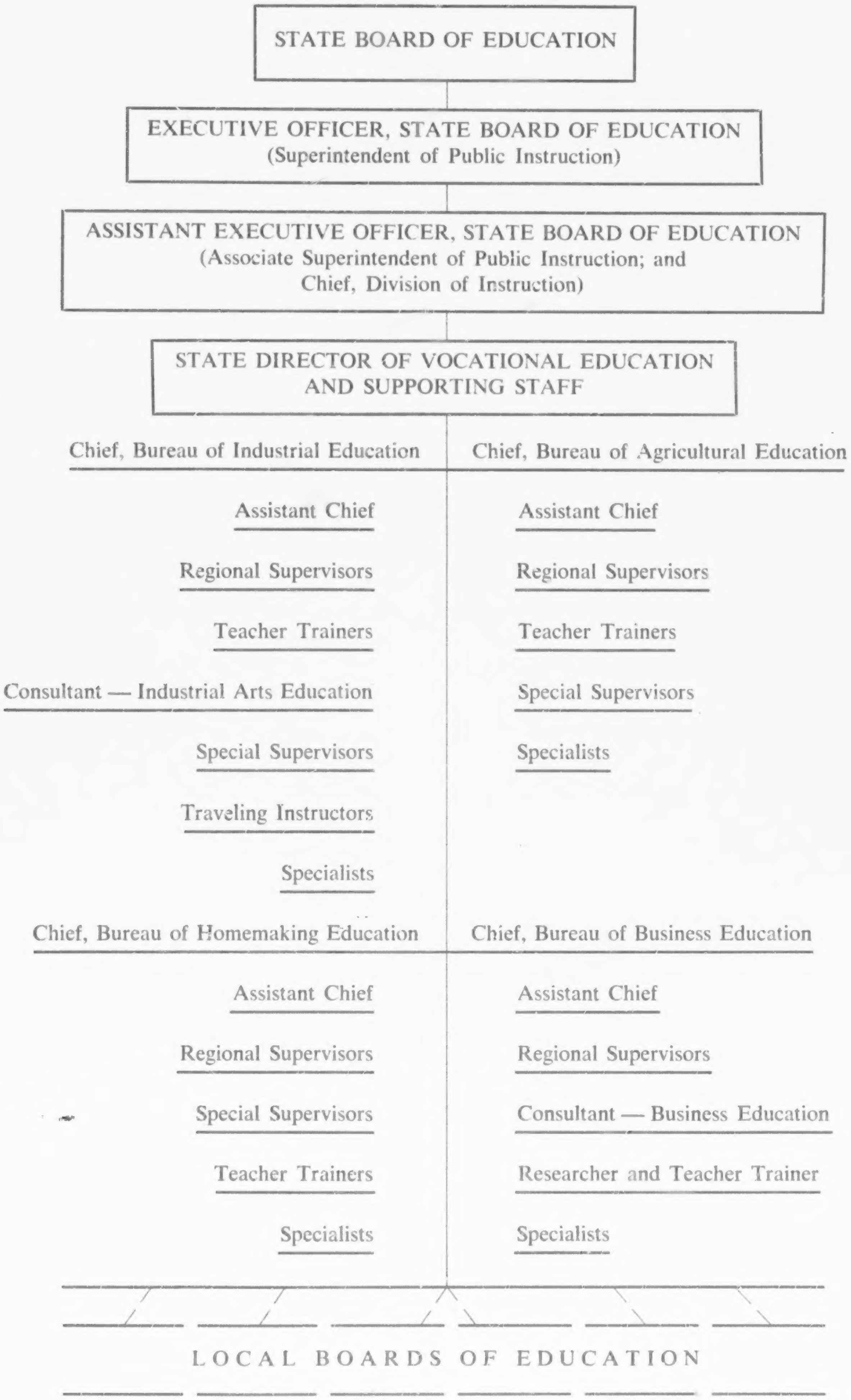
The past 30 years have witnessed a series of abrupt and complex changes that have produced prodigious and invigorating influences upon California's economy. A great depression, a World War, a postwar readjustment period, another war, and a series of bulges and recessions in the economy; an in-migration of population unmatched in the history of the world; the change from an agricultural to an industrial economy; the development of vast enterprises of aircraft production, shipbuilding, electronics, and missiles; ponderous efforts to build roads, hospitals, and schools — all these have happened to California, and more.

It is surprising that, with all of these amazing changes, only minor disruptions have occurred in the orderly deployment of California's work force. There is much evidence that one of the most significant influences in the orderly absorption of this series of shock waves in the economy of the state has been the continual and extensive contribution of the public schools in the area of assisting people to acquire an ever-expanding array of work skills.

PAST EXPERIENCE

During World War II, California public schools enrolled more than a million persons in specific defense-connected occupational training. New workers were prepared by the thousands for shipyard and aircraft production jobs. Other thousands of job holders were retrained for higher priority skills. This one effort accounted for one-seventh of all the persons trained for the war effort by the schools of the entire nation.

Then, following World War II, came the necessity of adjusting the skills of the work force, including thousands of returning veterans, to California's new economy. Again the schools were called upon to make extreme efforts, and in 1947 no less than 674,000 persons were enrolled in adult courses that were organized, for the most part, to serve the readjustment needs of the economy.


STATE BOARD OF EDUCATION
EXECUTIVE OFFICER, STATE BOARD OF EDUCATION
(Superintendent of Public Instruction)
ASSISTANT EXECUTIVE OFFICER, STATE BOARD OF EDUCATION
(Associate Superintendent of Public Instruction; and Chief, Division of Instruction)
STATE DIRECTOR OF VOCATIONAL EDUCATION AND SUPPORTING STAFF
Chief, Bureau of Industrial Education
Assistant Chief
Regional Supervisors
Teacher Trainers
Consultant — Industrial Arts Education
Special Supervisors
Traveling Instructors
Specialists
Chief, Bureau of Agricultural Education
Assistant Chief
Regional Supervisors
Teacher Trainers
Special Supervisors
Specialists
Chief, Bureau of Homemaking Education
Assistant Chief
Regional Supervisors
Special Supervisors
Teacher Trainers
Specialists
Chief, Bureau of Business Education
Assistant Chief
Regional Supervisors
Consultant — Business Education
Researcher and Teacher Trainer
Specialists
LOCAL BOARDS OF EDUCATION

These are examples of two powerful, forced-draft efforts, accomplished within a span of 40 years of consistent ceaseless effort upon the part of California's public schools to meet the training needs of the state's manpower.

RECENT EXPERIENCE

With the changing of job requirements at an accelerated speed during the past few years, and with the shifting of the industrial economy to new activities and new enterprises, increased attention has been given to training and retraining of both employed and unemployed workers. In 1961 more than 4,300 separate classes were conducted for employed workers who were either apprentices or journeymen-craftsmen. These classes varied from automotive mechanics to welding. They included more than 3,000 journeymen in the aircraft industry, 4,000 journeymen auto mechanics, 6,500 apprentice carpenters, 4,000 drafting craftsmen, 4,200 electrical apprentices, 3,700 plumbing and pipefitting apprentices, and 30,000 technicians. All of these classes were conducted in the afternoon or evening through the means of classes for adults organized by high schools or junior colleges.

This is only part of the story of recent and current activity in the area of training and retraining. The record in the area of business occupations is just as extensive. Enrolled during 1961 in some 3,600 separate classes were more than 125,000 adults who had as their purpose the improvement of their skills for jobs they already held or the addition of skills essential for new or different jobs.

CURRENT ACTIVITY

The pace of the past few years seems to be quickening. Special, unique programs have been established for preparing unemployed persons for gainful employment. These are in addition to the thousands of classes created and maintained for employed workers who must acquire new skills, new knowledge, and new understandings necessary to the maintenance of job competence. The advent of federal aid for these efforts makes possible the development of many new programs of instruction heretofore too costly or too complex for local schools to operate without additional financial assistance.

POLICY

The ability of the schools to absorb the increasing requirements for vocational instruction seems obvious, especially when additional financial assistance is available. It will be assumed, therefore, that the policy within the state will be to administer, coordinate, develop, and operate all federally aided programs of vocational education through the existing staff organizations at both the state and local levels. Insofar as possible and appropriate, this will be accomplished through the facilities of the public schools.

This policy is based upon the fact that California is blessed with the most extensive and the most modern public schools to be found any place in the world. Its educational structure both permits and encourages wide flexibility in meeting any known training need. Its time-tested adult education program, its system of junior colleges, its broad-based teacher licensure structure, and its high degree of local autonomy — all combine to make its facilities and programs responsive to the needs of the state.

Summary

California is a big state, and all of its essential services are sizable. For a number of years its program of public school education has enrolled the largest number of pupils among all the other states. The people of this relatively young state have been generous in their support of public education. Innovations in both the program structure and its tax base have not been hindered by tradition or precedent. It follows, then, that its program of vocational education is extensive.

The preceding description of vocational education in California is, no doubt, colored by provincial pride and influenced by its accomplishment and its magnitude. It must be specified that this description, although accurate, has not included an assessment of difficulties, failures, frustrations, deterrents, and other problems that abound in a complex of this nature. An objective, adequate appraisal of the manner in which the program matches the total needs of the state would require treatment more extensive than even this abridged description of its salient features. This descriptive statement, therefore, must include the stipulation that no part of the program and no part of the setting in which it operates are flawless. There exist strengths and weaknesses that vary from school to school and from year to year. There are corrective adjustments that need to be made. There are new practices that need to be implemented. There exist gaps that need to be closed. There are attitudes that need to be changed. There are innovations that need to be attempted. In short, the program of vocational education in California, as in any other state, is neither complete nor perfect.

XIII. Vocational and Technical Education in Illinois

Editor's Note

At the request of the office of Superintendent of Public Instruction of the State of Illinois, a very fine two-year study of Vocational and Technical Education in Illinois has been prepared by four staff members of the University of Illinois and Chief, Emeritus, Bureau of Adult Education, California State Department of Education. Because of the carefulness and completeness of the study, we have requested and obtained permission to reproduce on the following pages the title page to the study, table of contents, and Chapter VIII, Summary of Findings and Recommendations, in its entirety. The reader should understand that this is a study, and that the recommendations embodied in the study have not yet been implemented.

PRECEDING PAGE BLANK-NOT FILMED

Vocational and Technical Education in Illinois

TOMORROW'S CHALLENGE

WILLIAM P. MCLURE, *Director*
Director, Bureau of Educational Research, and Professor of Education

GEORGE C. MANN
Chief, Emeritus, Bureau of Adult Education, California State Department of Education

HERBERT M. HAMLIN
Professor of Agricultural Education

M. RAY KARNES
Professor of Education

P. VAN MILLER
Professor of Education

Bureau of Educational Research, College of Education
University of Illinois, Urbana, 1960, for the
Office of the Superintendent of Public Instruction, State of Illinois
Springfield, Illinois

PRECEDING PAGE BLANK- NOT FILMED

Contents

CHAPTER

I. Introduction
II. Occupational Trends and Their Implication for Education
III. The Nature of Vocational Education
IV. The Nature of Technical Education
V. Organizing and Financing Technical Education Beyond the High School
VI. Organizing and Financing Vocational Education in the High School
VII. The Education of Teachers and Other Professional Personnel
VIII. Summary of Findings and Recommendations

APPENDIX

A. Procedures for Estimating Additional Workers and Replacements in Illinois from 1955 to 1965
B. Population Trends
C. Procedures for Estimating Enrollments in Technical and Semi-Technical Curricula, 1965-1970 Goal
D. Distribution of Potential 1965 Enrollments in Technical and Semi-Technical Curricula
E. Estimated Populations, 1965
F. Indexes of Tax Ability of Forty-Four Illustrated Subregions (Per Cent of State Total)
G. Effort of Forty-Four Proposed Subregions in the Use of Property Taxes, 1957-58
H. Procedures for Estimating Costs of Technical and Semi-Technical Curricula

PRECEDING PAGE BLANK-NOT FILMED

Summary of Findings and Recommendations

[Reprint of Chapter VIII]

All of the social and economic trends in Illinois point to a tremendous challenge for the education of citizens in the future. Every agency which has a part in this great enterprise will have to re-examine its role to determine how it can contribute more effectively than it has done in the past. Private educational institutions, business and industry, the various voluntary agencies, and the public school system — all must re-examine their contributions in the light of future needs for the welfare of this state and the nation.

To the members conducting this study, the evidence shows that government through the public school system must exercise an increasingly greater responsibility in the education of citizens. This study presents an estimate of the task, with particular reference to vocational and technical education, which this state should set as a goal for the public schools to accomplish by 1970.

This task requires a comprehensive perspective of education from elementary school through the college and university. The special phases limited to this study are the vocational and technical programs at the high school and post-high school levels, respectively.

A review of the outstanding characteristics of the perspective for these two phases of education will provide a background for the specific findings and recommendations which follow.

Vocational education is described in this study as the instruction at the high school level which deals specifically with preparation for occupational work. It is not limited to youth in high school. It includes part-time instruction for adults, for those who want to complete requirements for graduation, and for others who need further education to upgrade themselves on the job or to train for new jobs.

Vocational education is not limited to the courses of study which traditionally have been called "vocational subjects." It includes as well much of what is now called "practical arts" and business subjects. The responsibility of the public school system is to face the challenge presented by a wide variety of occupations for which special occupational preparation is needed at the high school level for youth and adults. This challenge calls for new ways of organizing and financing the total program of education.

Technical education is the phase of education with specialized preparation for occupational work between the high school and the four-year college which prepares students mainly for professional work. Institutions of higher education have concentrated largely on education for so-called professional work. In recent years the occupations have had an increasing need for workers with specialized talent and general knowledge superior to what the high school can give and yet requiring less time and different preparation from that which the senior institutions of higher education afford.

Technical education is in a stage of piecemeal development in Illinois. It consists of a collection of a few special courses of study, operated by local school districts through junior colleges in a few instances and as "special programs" attached to high schools in other cases. The vast range of occupations is hardly touched. What is needed is a well-rounded program of education of two years beyond high school with broad scope and not just a collection of a few special courses. The program of the future must offer individuals a choice among a wide variety of special courses within a context of general education for all persons. Moreover, such a program must be viewed as a part of higher education, requiring a special system for organizing, administering, and financing.

Technical education, therefore, in reality is junior college education. Since nearly half of the curricula in technical education consist of courses designed to provide education of general need for all citizens, a system of junior college education is needed which includes these curricula *and* those which lead students into the professions, requiring transfer to senior institutions of higher education for completion. More than this, technical education must be provided for large numbers of the adult population to upgrade themselves on the job or to prepare for new jobs as a result of technological change.

The specific findings and recommendations for improving vocational education at the high school level and technical education at the post-high school level are as follows.

High School Level

1. Two basic premises underlie the principles and procedures for improving vocational education in the high school. The first is the assumption that the comprehensive type of high school is the most suitable for the American society. The second one is that the high school should provide some initial vocational study in the eleventh and twelfth grades for substantial numbers of students whose occupational interests lead to immediate employment after graduation or to further occupational preparation at the junior college level.

2. Means to strengthen the public school program from elementary through high school should be continued and stepped up at a faster pace. Plans should be established to complete the reorganization of small districts and the consolidation of small schools within the next decade. The existence of reasonably effective administrative units and attendance centers (schools) is fundamental to the improvement of all phases of the educational program including vocational education.

3. A comprehensive approach is recommended in the planning of the high school program. The degree of specialization at this level is limited, but insofar as possible the high school should provide for the maximum development of students whose occupational goals lead (1) to further education for college graduation, (2) to further education at the junior college level, or (3) to immediate entry into occupational work.

4. A minimum high school population of 2,000 students is necessary to provide organization of the curriculum for efficient and economical instruction to meet the broad range of interests and needs. In view of the fact that only a few of the local school districts are likely to have a high school population of this size, it is recommended that immediate steps be taken to establish cooperative arrangements in small regions whereby several local districts can consolidate certain specialized vocational work in the eleventh and twelfth grades. These regions should be planned as subregions within large ones which would be designed to operate the post-high school programs of technical and semi-technical work.

The following curricula are recommended for initial consolidation on a subregional basis wherever this arrangement can provide a better program than the individual district can offer alone: vocational agriculture, trade and industrial work, business and distributive occupations, and homemaking.

These schools would serve three purposes, providing (1) for part-time attendance (two days per week or equivalent) of students from the regular high schools, (2) for youth who drop out of high school to return for a reorientation of their education, and (3) for part-time attendance of adults.

5. The high school should not be expected, even in the subregional school, to provide a complete vocational training. Students should receive a basic foundation in broad fields of occupational choice upon which they can build specialized technical training at the post-high school level.

6. The special appropriation for vocational education in high school should be transferred to the state distributive fund and this fund should be increased sufficiently to allow for allocations as outlined in items 7 and 8.

7. The financing of vocational education should be broadened to strengthen the programs offered solely by local districts and to accommodate the consolidation of special programs where feasible within areas (subregions) comprising several local districts. Instead of the special vocational aids as they are now known, there should be a general distribution formula with proper weightings to account for the variations in cost of the major components of the educational program. This principle should apply eventually to all phases of the total program and not exclusively to vocational education.

As the first step to move in this direction, it is proposed that the state distributive formula be revised to give local districts a choice of remaining on the old formula (present method of special aid on an "approved" basis) or going on the new one. In this manner the state could simplify its fiscal policy by transferring the special earmarked vocational aid at the high school level to the general distributive fund. The problem at the state level would then become a matter of making a division in the computation between districts which choose the old formula or the new one. This arrangement would avoid jeopardizing the existing programs, yet it would facilitate orderly adjustments in adapting to changing needs.

8. A new financial formula is proposed for allocation of expense for current operation and capital outlay for vocational education as follows:

a. Current Operating Expense

The state funds available to each subregion for consolidated vocational programs at the high school level would be the amount obtained by subtracting item (2) from item (1).

(1) The total approved operating cost of the subregional programs including transportation.

(2) The prorata share of constituent local districts. Each local district's share would be computed as the district's average per pupil operating cost applied to the number of its students attending the regional center in proportion to course load, not to exceed 50 percent of the cost per full-time equivalent student.

For example, a district with an average per pupil cost of $500 sends 50 pupils to a subregional center for specialized work where the

> approved cost per full-time equivalent student is $700. (These specialized programs including transportation may be expected to cost about 40 per cent more on the average than the regular ones.) The student's load at the center is about 40 per cent of his total course work. Hence, $200 per student (40 per cent of $500) is contributed by the sending district and $500 per student (the difference between the approved cost of $700 and the local district's share of $200) is obtained from state funds.

This formula would also apply to resident dropout students of each district. Assume that the same district as illustrated has 50 dropout students attending the subregional center on a full-time basis for vocational and other high school level work. The local district's contribution per pupil would be $500 minus the regular state aid allotment per pupil. If the latter were $150, then the district's share would be $350. The state's share would be $350 including the $150 in state aid which would have been paid to the local district had the student remained in the regular high school.

This arrangement would require local districts to maintain a continuing responsibility for the educational rehabilitation of its youth who drop out of high school.

In the case of part-time adult instruction on the high school level, which on the average amounts to one-fifth of a full-time load per enrollee, the local district would contribute an amount per full-time equivalent student equal to the yield of its qualifying tax rate per student in the public schools for regular state aid. For example, assume that the local district has an assessed valuation of $20,160 per regular school pupil. The qualifying rate of 62 cents would yield $125 per regular pupil. The district would contribute $125 per full-time equivalent adult student (about $25 per enrollee) and the balance would be obtained from state funds. This procedure would place responsibility upon the local districts to develop planned programs of part-time vocational education for adults.

This procedure would require that the Superintendent of Public Instruction prepare objective standards to be used in approving operating budgets of subregional vocational programs. In due time experience would yield sufficient empirical data so that the "approval" procedure could be changed to a mathematical cost unit basis and incorporated in the general distribution formula. This would then not mean that the state office should relinquish its general supervision to assure minimum standards.

Federal funds as now provided could be kept separate from the distributive fund and used to stimulate the development of subregional programs. Or if preferred, these funds could be transferred to the general distributive fund and used in the manner described for state funds.

b. Capital Outlay

It is proposed that the state finance outright the cost of sites, buildings, and equipment for high school vocational and adult education programs organized on a subregional basis.

9. An administrative organization will be needed to operate the subregional programs. It might be a lay board consisting of designated representatives of constituent local boards. This body would be assigned appropriate functions of policy making with power to employ the necessary personnel to operate the programs and services.

10. The level of the foundation program in the public schools must be moved upward, with an increasing proportion of the cost to be borne from state taxes. While this study is directing attention to certain phases of education called vocational by definition and custom, the total program must be kept paramount. There is no solution to any part out of context of a total wholesome situation.

Post-High School Level

1. In view of the critical needs for increasing numbers of technically trained persons, the state should establish a forward-looking policy for the development of a program of post-high school technical and semi-technical education at public expense. A few curricula require one year for completion, others three years; but the great majority require two years of full-time study.

2. The state should undertake a ten-year program of development leading toward a goal of educational opportunity which is in keeping with the state's economic and cultural status in the nation.

3. By 1970 the state should have an organized system of instruction in about 50 technical and 35 semi-technical curricula. Specific estimates are prepared for 44 and 32, respectively. Technological advances will require additional curricula as time goes on.

4. The program of development should make provision for instruction of students in full-time and part-time attendance.

5. Reasonable estimates of annual enrollments which public institutions should have to relieve the critical shortages (not the complete demand for additional workers and replacements) in 1965-66 are as follows: (1) 14,429 full-time and 12,420 part-time enrollments in technical curricula, (2) 42,955 full-time and 40,180 part-time enrollments in semi-technical curricula. The grand total is 70,477 full-time equivalent students. To supply half of the full-time enrollments in these two-year curricula would require 23.6 per cent of the 1965 high school graduates. Another 2 per cent would be required to meet half of the estimated enrollments of these curricula in private institutions. In 1958, 1.5 per cent of

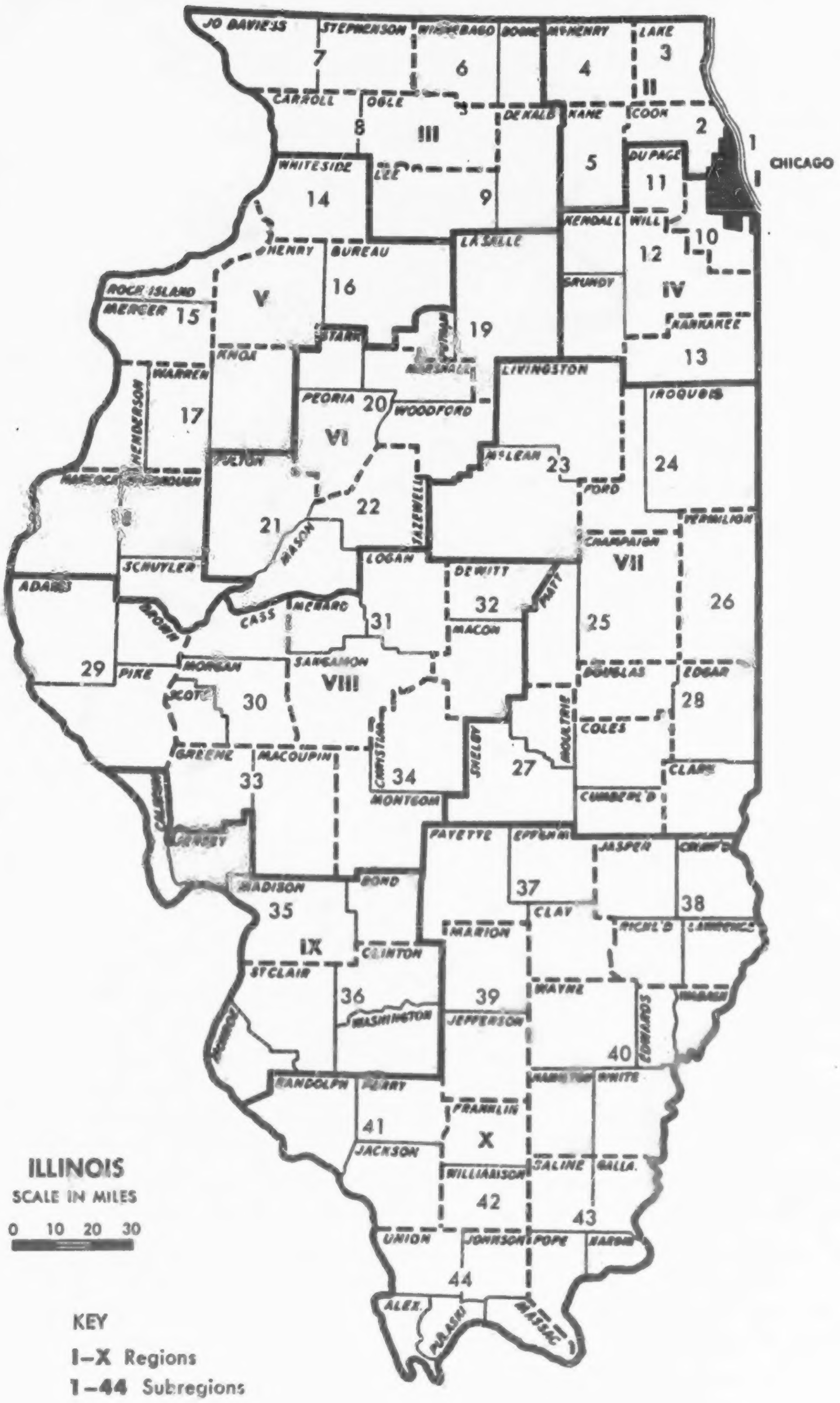

CHICAGO
ILLINOIS
SCALE IN MILES
0 10 20 30
KEY
I–X Regions
1–44 Subregions
JO DAVIESS
STEPHENSON
WINNEBAGO
BOONE
McHENRY
LAKE
CARROLL
OGLE
DE KALB
KANE
COOK
DU PAGE
WHITESIDE
LEE
KENDALL
WILL
LA SALLE
GRUNDY
KANKAKEE
ROCK ISLAND
MERCER
HENRY
BUREAU
STARK
PUTNAM
MARSHALL
KNOX
WARREN
HENDERSON
PEORIA
WOODFORD
LIVINGSTON
IROQUOIS
FULTON
HANCOCK
McDONOUGH
McLEAN
FORD
TAZEWELL
MASON
SCHUYLER
ADAMS
BROWN
CASS
MENARD
LOGAN
DEWITT
PIATT
CHAMPAIGN
VERMILION
MACON
SANGAMON
MORGAN
SCOTT
PIKE
DOUGLAS
EDGAR
MOULTRIE
COLES
SHELBY
CHRISTIAN
GREENE
MACOUPIN
MONTGOM
CALHOUN
JERSEY
CLARK
CUMBERL'D
FAYETTE
EFFINGHAM
JASPER
CRAWF'D
MADISON
BOND
CLAY
RICHL'D
LAWRENCE
MARION
CLINTON
ST CLAIR
WASHINGTON
JEFFERSON
WAYNE
EDWARDS
WABASH
MONROE
RANDOLPH
PERRY
HAMILTON
WHITE
FRANKLIN
JACKSON
WILLIAMSON
SALINE
GALLA.
UNION
JOHNSON
POPE
HARDIN
ALEX.
PULASKI
MASSAC
I
II
III
IV
V
VI
VII
VIII
IX
X
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44

Figure 2: Proposed Regions for Vocational and Technical Education Programs (Public High School and Post–High School Levels)

high school graduates entered some of these curricula in public institutions and 1.8 per cent in private institutions.

In 1958 the first-time enrollees in liberal arts and professional curricula in post-high school institutions in Illinois amounted to 45 per cent of the high school graduates in that year. In 1965 these enrollees are estimated to reach 48.8 per cent of the high school graduates of that year. Thus, if the state could develop programs to accommodate these estimates, a total of approximately 74.4 per cent of the 1965 graduates would enter post-high school educational programs of two years or more. This figure seems to be a reasonable goal within the next decade.

6. To accomplish this task with respect to technical education, the state should organize a statewide system of comprehensive-type junior colleges. This is preferable to a dual system of junior college education with one for technical and semi-technical curricula and another for college transfer curricula because of economy, better guidance of students, more systematic opportunity for student choice, administrative feasibility, and greater institutional prestige to attract competent staff members.

7. A state board of education should be created and assigned general policy making responsibility for the public junior colleges and the public elementary and high schools. The Office of Superintendent of Public Instruction, a constitutional elective office, should be replaced by an appointed state superintendent who would serve as chief executive officer of the board of education.

In the meantime, it is recommended that an interim advisory committee on junior college education be created to advise the State Superintendent of Public Instruction and that the Superintendent be empowered to carry out developments of general policy established by law.

8. As a guide for implementing these goals, this study recommends the establishment of ten regions in the state strategically located with reference to population distribution, means of transportation, and geographic and sociological factors. A region should have an estimated minimum of 500,000 gross population or 30,000 high school enrollment between 1965 and 1970 to provide an appropriate base for a broad program offering reasonable opportunity for individual choice and meeting other criteria.

9. The largest population center of each region[1] should serve as the location of a junior college with technical, semi-technical, and college transfer curricula. All technical curricula for the region should be centralized there. It is estimated that from two to three smaller cities in each region would serve as appropriate extension centers for either semi-technical or college transfer curricula or both. No extension center should be established with an enrollment of less than 500 full-time students.

10. Each operating unit should have a campus that is designed to serve the program to be offered and to be expanded to meet future growth. The central unit should be so arranged as to accommodate a central administrative staff for the region; classrooms, laboratories, and shops for technical, semi-technical, and college transfer curricula; and common space for library, food service, recreation, and parking.

Seven of the proposed regions will have from 500,000 to 600,000 population in 1965. A fully developed program will house potential enrollments of between 2,300 and 3,000 full-time students in the central unit for technical and semi-technical curricula. At least another 1,000 or more would be expected for college transfer work, giving a total enrollment of between 3,000 and 4,000 full-time students. An institution of this size will require a campus of 120 to 150 acres.

About 19 extension centers in these seven regions would be expected to have an enrollment ranging from 500 to 1,500 full-time students in semi-technical and college transfer curricula. In each case about an equal number of part-time students for evening classes may be expected.

11. Each operating unit would have primarily a commuting student body. But planning should take into account that substantial numbers may be expected to prefer living in residence on or near the campus. This is particularly true for the main centers, where all of the technical curricula should be centralized.

12. A unified administrative organization[2] should be established to coordinate the total program of the region in the junior college. A regional lay board is proposed for local policy and advisement within general requirements established by law and rules and regulations of the state office.

In keeping with the status of this institution, the chief executive officer of the region should have the title of president. There should be a central administrative staff for finance, personnel, guidance, and other services for the whole region. Each operating unit should have an administrative dean, supervisory and instructional personnel, and other staff.

13. Costs for the estimated enrollments in technical education which the state will need in 1965-66 are based on 1959-60 prices, assuming an annual increase of 3 per cent (the long-term trend) in living standards but no allowance for increase in cost of living (inflation).

An average annual professional salary of $10,000 will be needed in 1965. The total cost of operation will be $1,000 per full-time student and $625 per full-time equivalent student on a part-time basis. The total annual operating cost for 70,477 full-time equivalent students is estimated at $65,567,125.

---

[1] Because of the density of population in the Chicago metropolitan area, the methods of organizing operating units in Regions I, II, and IV would not follow the pattern for the other regions described in items 9, 10, and 11.

[2] Such an organization is already available in Region I (Chicago).

Among the comprehensive-type junior colleges developing throughout the country, there is a trend to establish tuition policies that are comparable to policies for the freshman and sophomore students in the public senior institutions. A similar policy would seem reasonable in Illinois, with a maximum annual charge of $150 for each full-time student. At this rate the net operative cost for the development proposed in this study would be $54,995,575.

14. Costs of capital outlay for a properly designed campus, including site, buildings, and equipment, will cost at least $3,000 per full-time student, or a total amount of $172,000,000. This includes space for administrative and special service personnel, library, regular classrooms, laboratories and shops, food service, and recreation (not interscholastic athletics). This does not include facilities for residence.

15. Estimates of enrollments and costs for students in academic (college transfer) curricula in junior colleges are not included as a part of this study. It is generally known that the junior college will carry a significant share of the task of educating these students. Analysis of expenditures in a number of junior colleges reveals, however, that the average cost per academic student for operation and for capital outlay will be somewhere between 80 and 90 per cent of the cost per student in technical and semi-technical curricula.

16. Two methods of financing junior college education are proposed for consideration.

The first one is outright state support based on budget approval by a state board of education (by the state superintendent until such a board is created). The board (or the state superintendent) would have at its disposal technical assistance to prepare objective criteria for making such approvals.

The three major tax bases have been projected to 1965, and the respective rates required for each one of them alone to yield the estimated net cost of $54,995,575 for technical and semi-technical curricula are as follows: (1) retail sales, 0.32 per cent; (2) net personal income, 0.16 per cent and (3) property, 14 cents per $100 of assessed valuation.

The second method is a combination of state and regional taxes. In principle this is the same as the present method of financing the public elementary and secondary schools. This procedure has serious disadvantages with the fairly heavy burdens already carried by property and general sales taxes. To earmark a regional tax leeway from either one of these bases would hardly seem to be judicious when each form is already near the point of requiring relief by shifting some burden to other tax forms. This is especially true of the property tax. However, the establishment of a state income tax, which all informed persons realize will have to be done eventually, would make it possible either to earmark a regional income tax base or to use this form as a state tax to relieve one of the other forms which could be earmarked for this purpose.

The first method seems preferable to the second. This program of education possesses such a high degree of complexity that citizens probably can express a more effective voice for its support through state government. However, if the state-regional procedure is viewed as an essential means to stimulate vital interest and participation of citizens, it should be adopted.

17. Four general steps for implementing these proposals are recommended as follows:

a. Create a state system of junior college education.

b. Empower the State Superintendent of Public Instruction to employ the necessary technical staff to plan and supervise the development of the program.

c. Create an advisory committee to the Superintendent of Public Instruction on junior college education pending the establishment of a state board of education.

d. Set a ten-year goal for full development of junior college education.

XIV. Vocational Education in Michigan

BY LEON J. ALGER[1]

Introduction

PHILOSOPHY AND OBJECTIVES[2]

The program of vocational and technical education in Michigan is geared to an area of service related to the nature of the state's economy — one heavily oriented to the production of the nation's most widely used consumer goods. The trend toward use of greater technical skills in agriculture, business, industry, and home economics occupations places added responsibility upon the educational program to provide these worker skills. It should be emphasized that the program of vocational and technical education is not a separate adjunct of public education: it is an essential part of the total program of education in a single, comprehensive effort to meet the greatest number of needs of the largest possible number of Michigan children, youth, and adults.

The goal of programs of vocational education should be to contribute in a unique and specific manner to the development of individuals who will possess the necessary competence for chosen occupations. A concomitant goal should be the economic improvement of society.

A broad concept. Vocational education means education that is needed to engage in socially useful work. It is conceived of as that portion of education which goes further than general education by dealing in a more specialized manner with the development of occupational competence. The concept as such is not restricted to those programs that are reimbursable through the federal vocational education acts, but this paper will deal primarily with those programs that are.

Vocational education involves a variety of student experiences or learning activities. Included among such experiences should be supervised work experience in and relating to the occupational field to which the individual aspires or in which he is already engaged. There should also be instruction designed to provide information, to develop understandings, to illustrate the application of principles, and to motivate and develop socially desirable attitudes for the person preparing for entry or advancement in an occupation. Such organized instruction should be given by a person or persons who possess competence and experience in the occupational field involved. Student activities contribute to vocational education when based upon students' interests in the occupation and when related to the occupation. Student-teacher-employer-parent planning of such activities and experiences contributes to the appropriateness and effectiveness of these.

Effective programs of vocational education may be organized (1) to prepare individuals for entry into employment; (2) to upgrade, prepare for advancement, or retrain for another occupation those already engaged in an occupation; and (3) to provide basic preparation for additional specialized vocational or professional education.

Comprehensive education needed. Preparation for work has always been an important part of education. Success at work is essential for survival and for the development of useful citizens. To provide one's share of the goods and services needed by mankind is a recognized attribute of citizenship. Vocational education increasingly has been included as a part of a total educational program in the public schools. One educational goal toward which the public schools have worked is the development of systems that are comprehensive in character. Present and prospective workers for all walks of life need to attend comprehensive schools where they may learn both to live and to make a living. Although it is recognized that not all vocational education needed by people can be given in community schools, the curricula of such schools should reflect as far as possible the needs of the students for specialized education and for occupational competence.

Vocational guidance essential. Vocational education is most effective when it is preceded, accompanied, and followed by vocational guidance. When youth are provided with continuous, adequate guidance services, they are better able to know their occupational interests, abilities, and aptitudes and to formulate occupational plans. Programs in vocational education offered in a school should reflect the vocational interests, the employment opportunities, and the training needs of youth and adults. Specialized courses for development of specific occupational competence should be available to those persons who want, need, and can profit from them.

---

[1] Research Consultant, Division of Vocational Education, Michigan Department of Public Instruction.

[2] The material in this section has been adapted from the *Michigan Vocational Education Evaluation Project — Report of the Task Force on Philosophy and Objectives,* 1962.

A good program of vocational education, like any other program in a comprehensive school system, will, of necessity, involve individuals of varying general and special aptitudes and aspirations. Vocational education has a place in the total school program; it helps youth to make and substantiate vocational choices and to relate educational plans to these choices. It also should provide motivation for other school work, and indeed it could be used as a focal point toward which many of the total educational experiences or activities may be directed.

BRIEF HISTORICAL SKETCH

The schools of Michigan have offered vocational education classes for more than half a century, beginning with the teaching of handtool trades and continuing onward to teaching the use of today's complicated machines in the factory, on the farm, in business establishments, and in the home. The level of excellence of vocational education has improved steadily, and there is every reason to believe that it will continue to do so.

With the advent of power machinery, the cost of equipping school shops was greatly increased. The coming of power equipment into the home increased the cost of the school's homemaking program. New developments in the field of business machines markedly increased the cost of preparing high school youth for jobs in offices and retail establishments.

Legislation. Recognizing the burden that was placed upon many secondary schools as they sought to keep abreast of the times in preparing youth for jobs in agriculture, business, industry, and the home, Congress came to their aid. In 1917 the Smith-Hughes Vocational Education Act was passed for the purpose of providing continuing grants-in-aid to schools desiring to offer programs of vocational agriculture, trade and industrial, and homemaking education. The George-Reed and the George-Ellzey Acts were passed in 1929 and 1934, respectively, for the further development of vocational education. In 1936 Congress granted further aid to the program of vocational education through passage of the George-Deen Act, which provided additional aid for the programs mentioned above and, in addition, funds for distributive education. In 1946 the George-Barden Act supplanted the George-Deen Act. This Act increased funds for vocational education and authorized the states to use a portion of the appropriated funds for the development and improvement of local guidance programs. Although vocational education funds have been used in a number of states since 1938 to maintain guidance services, the practice was made possible by an administrative interpretation of the Smith-Hughes and George-Deen Acts rather than by specific inclusion as in the case of the George-Barden Act. In 1958 the National Defense Education Act was passed. Its Title VIII amended the George-Barden Act to include funds for the training of highly skilled technicians in fields essential to national defense. Finally in 1961 and 1962, two acts were passed providing for the retraining of unemployed workers. These were the Area Redevelopment Act and the Manpower Development and Training Act.

Financial support. The readiness of Michigan schools for an expanded program of vocational education is indicated by the fact that the Legislature began regularly appropriating state funds to match federal vocational education funds after passage of the Smith-Hughes Act in 1917. Financial support of vocational education by the Legislature through special appropriations has been continuous for over 40 years. The number of school districts taking advantage of federal and state funds for the development and improvement of vocational education for youth and adults has grown steadily from year to year since 1917.

Growth of programs. Although some start had been made in the direction of preparing youth through vocational education to become productive citizens, the advent of state and federal grants-in-aid encouraged Michigan to set herself earnestly to the task of meeting the educational needs of youth not planning to enter college for further formal education. The program of vocational education in local schools has grown from one serving a few hundred boys and girls prior to the 1920's to one now serving more than one out of every five enrolled in the secondary schools of Michigan. It is significant that while enrollments in grades 9 to 12 have increased 40 percent since 1940, enrollments in vocational classes have increased 99 percent. In the same period the number of adults enrolled in vocational education classes increased by 75 percent.

Over 78,000 out-of-school Michigan youth and adults were enrolled in reimbursed vocational education classes last year. Employed workers in agriculture, distributive businesses, and industry, as well as homemakers, enrolled in these classes for the purpose of improving their occupational competence.

Operation of Programs

ADMINISTRATIVE ORGANIZATION

Two state boards. Michigan has two state boards for the administration of educational programs. One, the State Board of Education, is composed of four elected members and the Superintendent of Public Instruction who also serves as secretary to this Board. The State Board of Education has general supervision of the Michigan Rehabilitation Institute and the four former state teachers colleges, namely: Central Michigan University, Eastern Michigan University, Northern Michigan University, and Western Michigan University.

The Superintendent of Public Instruction is vested with power of supervision over all public instruction within the state, except that the public colleges and universities, other than the four mentioned above, have separate administrative boards which are responsible for the supervision of their respective institutions.

The second state board is the State Board of Control for Vocational Education. This is the policy-making body for reimbursed vocational education programs in public schools and institutions. This Board is composed of seven members as prescribed by the Legislature: the presidents of Michigan State University and The University of Michigan, the Superintendent of Public Instruction, the chairman of the State Board of Education, and three members appointed by the Governor representing employers, employees, and agricultural interests. The Superintendent of Public Instruction is executive officer of the State Board of Control for Vocational Education.

The Division of Vocational Education, within the Department of Public Instruction, is composed of the Assistant Superintendent for Vocational Education (State Director), five service chiefs, a finance accountant, a research consultant, and a number of additional consultants in the various services.

Advisory groups. One of the unique features of the administrative organization is the Michigan Council for Vocational Education Administration. This advisory group is made up of 18 local school superintendents, 1 from each of the Michigan Education Association regions. Each is elected for a period of 2 years by superintendents in his geographical region who operate one or more reimbursed vocational education programs. The Council serves in an advisory capacity to the Division of Vocational Education.

Because the Council is selected on a geographical basis the membership tends to represent those vocational education programs that are present in smaller school systems, the majority of which have only agriculture and/or homemaking programs. Local directors of vocational education are also frequently consulted regarding the administration of vocational education programs. These local directors are generally found in the larger school systems, which tend to have more comprehensive programs.

Two other state-level advisory groups serving the Division of Vocational Education should be mentioned. One, the Advisory Committee on Title VIII of the National Defense Education Act, was appointed to assist the Division of Vocational Education in establishing principles and policies in connection with the provisions of the Act. The other is the Michigan Curriculum Program.

The Michigan Curriculum Program is a cooperative arrangement through which state curriculum committees, interested individuals, and other voluntary and official agencies work to improve Michigan's schools. This program has been in operation for almost 25 years and has been rather unique and highly successful in involving people in the improvement of education on a statewide basis. The curriculum committees that make up this program are advisory in nature. Several of these committees deal with specific curricular areas in vocational education. Included are committees on agricultural education, business education, guidance, home and family living, industrial arts, trade and technical education, and school holding power.

THE JUNIOR HIGH SCHOOL

Mention is made of the junior high school only to show its relationship to vocational education. No reimbursed vocational classes are operated at the junior high school level with the exception of a few ninth grade home economics courses; however, several programs do make a vocational contribution in terms of exploratory values. Most junior high school curriculums offer some practical arts courses in the area of industrial arts and home economics. In a few cases, the vocational home economics teacher also teaches a junior high class when the grade structure is such that the ninth grade is found in the junior high school.

These classes can play a significant role in helping the boy or girl explore a number of occupational fields. Many students are beginning to think constructively about their life's work at this time, even though a firm vocational choice may not be made for a number of years.

THE SENIOR HIGH SCHOOL

Public school statistics indicate that from two-thirds to three-fourths of all Michigan students entering the ninth grade terminate their formal education at or before high school graduation. Current statistics reveal that approximately 28 percent of those entering the ninth grade fail to graduate from high school.

Significant trends. Many trends in our society today emphasize the need for schools to prepare students for the world of work. Never before has the need for our schools to assume this responsibility been more essential and urgent. Unskilled and semiskilled jobs are rapidly disappearing. According to the Michigan Employment Security Commission, the city of Detroit alone loses over 2,000 entry jobs annually. Most of these are in the unskilled or semiskilled categories.

Technician and highly skilled occupations are increasing at a tremendous rate. The ratio of occupations requiring specialized training to occupations requiring little or no training is increasing. More jobs are becoming more interesting, but these jobs are also requiring more education, more imagination, and more technical capability.

Perhaps one of the most significant facts facing Michigan educators is the number of persons reaching 18 each year, ready to enter the labor force or go on to college. The Michigan Employment Security Commission reports that this number will increase in Michigan from 115,600 in 1960 to 173,200 in 1970. Even more startling is the 27 percent increase in 18-year-olds between 1964 and 1965 — from 121,000 to 165,700 in 1 year! To provide adequate schooling and educational facilities for these people is a major concern. Indeed it is likely one of the most pressing problems to be faced by Michigan's economy during the sixties.

At the present time, reimbursed vocational education programs in Michigan are providing training for approximately 68,000 high school youth. When this figure is compared with the more than 347,000 high school youth enrolled in Michigan high schools, we must recognize that our efforts to date have not been adequate. Only about one-fourth of our young people who must acquire a salable skill before they leave high school are enrolled in reimbursed vocational education programs.

Reimbursed versus nonreimbursed programs. Vocational education programs, because they are reimbursed with state and federal funds, must meet certain standards. The teachers in such programs must have completed minimum educational and occupational experience qualifications. There are also certain requirements in regard to length of classes, selection of students, and facilities. Consultants are available from the Division of Vocational Education to advise in regard to curriculum development. Curriculum development is a local responsibility with assistance from the state level.

Nonreimbursed programs do not have to meet these minimum requirements. Nevertheless, many nonreimbursed vocational education classes are operated with high standards and do a good job of preparing students for entry into an occupation. Confusion and misunderstanding arise when courses such as industrial arts, general agriculture, and general business are referred to as vocational courses. These courses usually have general education objectives and are not designed to prepare for occupational competence.

Vocational education at the high school level is in the form of *preparatory* classes for entry into an occupation. In Michigan such classes are offered in the broad occupational fields of agriculture, business, homemaking, and industry.

Agricultural education. Vocational agriculture is offered in 43 percent of Michigan's high school districts. Agricultural education at the high school level has two rather broad objectives: (1) to develop abilities, attitudes, skills, and understandings that enable a student to make a beginning in the occupation of farming; and (2) to develop those agricultural abilities, attitudes, skills, and understandings needed by students who plan to enter those nonfarm occupations in which agricultural competence is required in addition to other occupational competence. Much controversy and confusion has arisen in recent years regarding this second objective. As many of the operations in the business of farming have moved off the farm and are now being performed by someone other than the farmer, the question has been raised regarding the kind of training needed by persons in these "farm-service occupations." It should be evident that they need knowledge and skill in both agriculture and business and even some industrial skills rather than any single skill.

This is but one example of an overall problem in vocational education today. Provision must be made for the kind of occupational training that requires skills and abilities from several of our traditional vocational education fields. Vocational educators must recognize that we live in a society in which the occupational structure is rapidly changing. As the scope of many occupations expands and as that of others becomes more specific, entirely new types of educational programs must be developed. In many cases, new "packages" encompassing parts of our traditional programs in agricultural, business, and industrial education must be developed. The emergence of entirely new occupations and the changing importance of existing ones must also be considered in the planning of comprehensive educational programs.

Home economics. The preparation of young people for establishing and maintaining a desirable family life is another responsibility that the public school has accepted. Here again many changes in our society have greatly increased the importance and the complexity of the job of the homemaker. The marked increase in the percent of wives and mothers working, the pressures of a complex society, the problems of child care, and a host of other related problems cannot be ignored by educators if they are truly to provide an education for young people that adequately prepares them for life. Vocational home economics programs are offered in 63 percent of Michigan's high school districts.

Business education. High school preparatory classes in business education are an integral part of most high school programs in Michigan; however, the degree to which high schools provide a well-rounded preparation for entry into the business world varies considerably. It would be difficult to find a Michigan high school that does not offer such classes as typing, shorthand, and bookkeeping. These courses usually serve a dual purpose — to provide general education for many students and to provide basic vocational skills for others. These basic courses are an essential part of preparation for office occupations. Beyond these courses considerable variation is found, but little attention is given to courses preparing for the distributive occupations.

Cooperative education. Reimbursed cooperative work-study programs are offered by less than one-fifth of Michigan high schools. Such programs may provide training for office, distributive, or industrial occupations.

Work-study programs utilize business and industrial establishments in the community for on-the-job training together with the necessary in-school related instruction. When properly conducted, these cooperative arrangements can enable the school to provide occupational preparation opportunities that would be impossible if the school had to provide the work situation. Many more Michigan school districts could come closer to providing comprehensive educational programs if they would make greater use of the work-study concept.

Trade and industrial education: In trade and industrial education two distinct programs are offered for high school youth: (1) trade preparatory classes, and (2) cooperative education programs. Trade preparatory classes are offered for such skilled occupations as printing, welding, automotive mechanics, foundry work, and machine shop. Cooperative work-study programs operate similarly for both industrial and business occupations.

Reimbursed trade and industrial education programs are offered in only approximately 100 Michigan high schools. This is less than one-fifth of all high schools. There are several reasons for this. Such programs are relatively expensive to develop and maintain. The required three-clock-hour periods for preemployment day trade classes may also be a factor, and some high school administrators say that such long class periods make it impossible for the student to meet other requirements. This relates to the disproportionate emphasis on college preparatory courses in the high school program. If schools are to meet the educational needs of each individual student, however, an individualized curriculum must be developed for each student based on his specific aptitudes and interests. Although there are a number of schools offering nonreimbursed industrial education classes, it is evident that many high school students do not have an opportunity to acquire sufficient industrial skills to compete successfully in today's job market.

Most Michigan high school programs include courses in industrial arts. Although these courses do not have vocational objectives, they do contribute to the industrial education programs of the schools. These courses serve to acquaint the student with industrial processes and provide exploratory experiences.

A few high schools, located principally in industrial areas, are offering classes for the preparation of highly skilled technicians; however, most of the technician training programs are operated at the community college level. Many people consider it difficult to develop the rigorous type of training required of the technician at the high school level. Area programs or schools could provide such educational opportunities.

Youth groups. Three youth organizations are operated in conjunction with high school vocational education programs in Michigan: the Cooperative Education Club of Michigan — as a part of cooperative programs in the fields of business and industrial education; the Future Homemakers of America — as part of home economics; and the Future Farmers of America — as part of vocational agriculture programs. These three organizations provide youth with an opportunity to develop leadership and other human relations skills as an integral part of their education for an occupation. In many cases they also serve as a vehicle for the teaching of subject matter. The Future Farmers of America is a good illustration of this. Many local chapters of the FFA conduct group projects and operate land laboratories, thereby providing the teacher of vocational agriculture with unique teaching opportunities.

Vocational guidance. There is little evidence of adequate vocational guidance in Michigan high schools today. This is surprising in that guidance services started out in this country to be vocational in character. Frank Parsons, in his book, *Choosing a Vocation* (1908), introduced the concept of vocational guidance. He described it as a process designed to "aid young people in choosing an occupation, preparing themselves for it, finding an opening in it, and building a career of efficiency and success." The present-day concept of vocational guidance is little changed from this early one.

As guidance services developed in the educational process in this country, counselors were increasingly selected from the ranks of those educators in the so-called academic fields. This came about following World War I with the development of group tests designed to measure capacity for mental achievement. Consequently, counseling moved into the college preparatory phase of modern-day guidance services. The guidance services pendulum had swung from being exclusively concerned with vocational guidance to the other extreme, and to a large degree the guidance program in our high schools has never recovered from this overemphasis on college preparatory guidance to the relative exclusion of vocational guidance.

A recent study indicates that counselors spend more time on college preparatory counseling and consider it to be more important and more enjoyable than counseling regarding vocational problems.[3]

With the background that most counselors have, it is not surprising that many feel more secure in counseling the academically inclined student. We can also see why many counselors guide the superior student toward college and tend to reserve vocational courses for the less able — hence the criticism by vocational teachers that their courses become "dumping grounds" for the poor student.

This paradox is not without hope. All too often, communication between counselors and vocational teachers has not been all that might be desired. In too many cases, neither has understood what the other was trying to do for boys and girls. At least one Michigan school system has employed a counselor whose only responsibility is that of vocational guidance. This person has been instrumental in acquainting other counselors in the system with the needs of business and industry. Highly successful counselor visits to various industries and businesses have been arranged. This vocational counselor has become deeply involved in assisting students from both the high school and the community college in job placement. He has also served to improve communications between the vocational teachers and the counselors within the various schools of the system.

---

[3] Michigan Department of Public Instruction, Division of Vocational Education, *The Work of the Counselor in Michigan Secondary Schools* (Lansing: The Division, 1957).

Worth of the individual. If all educators, including counselors, believed that each student should be provided with the opportunity to develop his abilities and interests to the maximum and if they practiced this belief, the problem regarding which courses certain students should take would be greatly reduced. Vocational teachers must recognize that each student should undertake as rigorous an educational program as his ability may warrant. Counselors, on the other hand, must recognize that many students who are above average in academic ability should be enrolled in vocational courses in order to gain a foundation for advanced work on the post-high-school level. Highly skilled technicians in agriculture, business, home economics, and industry must come from the ranks of the so-called academically talented.

It is hoped that in the near future educational programs can be developed that will meet the needs of the less able students much better than do the kinds of programs now available. Very few high schools offer programs that will motivate the less able students to develop fully the talents that they possess. At the present time, vocational courses offer the best and usually the only place in the curriculum where the low-ability students can satisfy their educational needs to any significant degree.

THE COMMUNITY COLLEGE

At the present time, there are 16 community colleges operating in Michigan. Provision is made in Michigan for four types of legal control. A community college may be established (1) by any school district having a population of more than 10,000 and operating grades K-12; (2) by 2 or more school districts by means of mutually agreeable policies and administrative procedures with the approval of the Superintendent of Public Instruction, or by the voters if the combined population is less than 10,000; (3) by the formation of a separate community college district comprised of one or more contiguous counties subsequent to approval by the State Board of Education and with a favorable vote by the electors in the county or counties; or (4) by the formation of a separate community college district comprised of two or more K-12 grade school districts with the approval of the Superintendent of Public Instruction and the voters in each of the constituent districts.

Eleven of these two-year colleges are offering programs for the training of highly skilled technicians through the provisions of the National Defense Education Act of 1958. Technician training is available in such occupational areas as civil engineering technology, electronics, industrial chemistry, hydraulics, industrial technology, tool and die design and manufacture, drafting and layout technology, aspects of supervision and management, and metallurgy. In addition, all of these institutions offer programs in the business and secretarial fields. The extent and quality of these vocational education programs vary considerably among the several institutions. In fact, only four offer what might be termed a comprehensive program for students desiring to enter a vocation immediately after graduation from the community college.

Purposes. According to their catalogue statements, Michigan community colleges accept the five usual community or junior college responsibilities in a general way. These responsibilities are (1) providing a general education for all students, (2) offering courses parallel to the first 2 years of regular college or university programs, (3) providing programs for persons interested in employment immediately after attending the community college, (4) offering adult and community service programs, and (5) providing a full program of student personnel services. An analysis of their course offerings reveals, however, that they are still placing major emphasis on the preprofessional and regular lower division college offerings. They need to strive for a better balance between programs designed for students wishing to transfer to four-year institutions and programs designed for those who will seek employment immediately after leaving the community college.

Technical education. The dire need for expanding the technical occupational curricula in Michigan's community colleges is evidenced by the fact that a high percentage of students in the present technical education programs are accepting positions in their fields of training even before the completion of the training program. This would seem to indicate that employers feel that because of their acute needs for technicians they cannot afford to wait for these students to complete their training, but would rather hire the "unfinished products" with the hope that they will complete their training while on the job. Many students in this situation will, no doubt, return for further training in the future, perhaps at their employers' expense.

It should be noted that even though Michigan community colleges are not adequately providing for organized occupational programs, they are one of the chief sources of supply for technicians and semiprofessional personnel in the state. Martorana points this out in his study of *The Community College in Michigan.* He found that, when compared with the state colleges or the private institutions of higher education, community colleges have more students enrolled in and graduate more students from semiprofessional and technical programs than either of the others.[4]

In the past a contributing factor to the failure of community colleges to develop adequate occupational curricula has been the lack of adequate physical facilities and equipment. At the present time, however, seven institutions have embarked upon long-term building programs with facilities and sites distinctly separated from elementary and secondary schools. These new facilities include provision for vocational-technical programs.

Beginning in 1956, the Legislature has annually appropriated an amount for building purposes to the Superintendent of Public Instruction for distribution to districts operating community colleges. These appropriations have totaled $6,400,000 since 1956. During that time, the local districts will have spent an additional amount from local sources of almost $18 million.

In view of their stated objectives and recent efforts, we can confidently look forward to the time when our community colleges will meet their responsibility for providing high-quality programs that will enable students to acquire occupational competence in the technical and semiprofessional fields.

FOUR-YEAR COLLEGES AND UNIVERSITIES

All of Michigan's public four-year colleges and universities offer specialized programs of a vocational character that do not carry college credit leading to a degree. In some institutions these courses are offered through the adult or continuing education division of the college or university; in others they are offered by one of the regular academic divisions.

Ferris State College is a unique institution in Michigan higher education. This state college places primary, though not exclusive, emphasis upon practical vocational and technical education. It provides also professional-degree programs in pharmacy, commerce, and teacher education. It has the further purpose of offering and maintaining general educational programs for mature adults.

Ferris State College has, without question, one of the most outstanding trade and technical programs in the country. This institution provides post-high-school training in a number of industrial areas which require less than 4 years of college. Since 1946 these trade programs have flourished and presently total 16 separate curriculum offerings.

Since 1894 Michigan State University has provided several short courses in the College of Agriculture for the persons who, for various reasons, do not choose to enroll in the regular four-year program. These courses vary in length from 2 weeks to 2 years and provide intensive and highly practical training for the young farmer and for those students wishing to prepare for or to acquire additional training in one of several agricultural industries. Several of these short courses utilize the cooperative work-study concept of education. Students alternate quarters in college with work on the job. Such off-campus placement training is under the supervision and guidance of the University. These programs include commercial floriculture, elevator and farm supply, farm equipment service and sales, and nursery and landscape management.

Northern Michigan University is presently operating a retraining program for unemployed workers under the provisions of the Area Redevelopment Act. Classes are being offered in several office and secretarial occupations, welding, and machine operation. It is possible that this program could develop into a high-quality training center for a large number of technical occupations in Michigan's Upper Peninsula.

The Michigan College of Mining and Technology provides opportunities to study and earn degrees in many areas of technology — 10 fields of engineering, 7 fields of science, forestry, engineering administration, and business administration. In addition to these degree programs, this institution also offers a program of less-than-degree level for the training of technicians in metal processing. Michigan Tech is one of the larger colleges of engineering and science in America.

Western Michigan University offers cooperative work-study programs in the fields of food distribution (supermarket management) and petroleum distribution.

Other examples of similar programs would include sales and management workshops for small business personnel by Northern Michigan University; supervisory and management training programs by The University of Michigan and Wayne State University; school bus-driver training courses at Central, Eastern, and Western Michigan Universities; and a custodial training program at Michigan State University.

OUT-OF-SCHOOL ADULT PROGRAMS

Apprenticeship training. Apprenticeship training is conducted in Michigan through a cooperative relationship between the Division of Vocational Education and the Bureau of Apprenticeship and Training of the United States Department of Labor. Related instruction for the various trades is offered throughout the state in a number of public schools.

Related instruction for apprentices in the building trades is taught by nine itinerant teachers who are employed by the state but work under the direction of local schools. These teachers travel throughout the state. The basic trades in which training is being given through this itinerant program are plumbing and steamfitting, carpentry, industrial electronics, bricklaying, and ironwork. This program is rather unique and involves only a portion of the total apprenticeship program in Michigan.

---

[4] S. V. Martorana, *The Community College in Michigan*, Staff Study No. 1 of The Survey of Higher Education in Michigan (Lansing: The Michigan Legislative Study Committee on Higher Education, 1956), p. 4.

There are approximately 7,500 registered apprentices currently receiving training in Michigan, which compares with about 112,000 in the United States. Michigan ranks third, behind California and New York, in the number of apprentices in training. Apprenticeship training, however, has declined from its peak in 1957. Many people feel that greater use could be made of the apprenticeship method of training skilled workers. The present program involves only a token number of those who could profit from such training.

There is a trend in Michigan toward offering more of the related instruction for apprentices through the community college programs. The reaction to this gradual transfer of responsibility seems to be very favorable, and it is anticipated that this trend will continue.

A comprehensive two-year evaluation study of apprenticeship training in Michigan is now under way. This project involves the Bureau of Apprenticeship Training of the United States Department of Labor, the State Division of Vocational Education, management, and labor.

Training for the unemployed. One of Michigan's most pressing economic problems has been its relatively high rate of unemployment. The phenomenon of unemployment can no longer be considered as temporary — the plight of the unemployed worker is indeed a serious one.

The skills of many persons have been rendered obsolete by dislocations in the economy arising from automation or other technological development, foreign competition, relocation of industry, shifts in market demands, and other changes in the structure of the economy. Some writers predict that a sizable percent of our labor force will be in the position of having to prepare for three, four, or five different occupations during their working lives.

Until recently we have depended upon the regular adult vocational education classes for the retraining needed. Such classes, however, do not truly meet the needs of the unemployed. Persons who are unemployed need relatively short-term, intensive kinds of instructional programs that are directly related to employment opportunities.

The development of retraining programs for the unemployed has received considerable emphasis in recent months. The Division of Vocational Education and the Michigan Employment Security Commission have cooperatively developed a number of programs for the training of unemployed workers. The Area Redevelopment Act and the Manpower Development and Training Act are manifestations on the part of Congress of the seriousness of unemployment in many sections of the country. Training programs are now being developed and conducted through the provisions of these acts.

One of the most significant outgrowths of these two acts has been the establishment of new working relationships between the Department of Public Instruction and the Michigan Employment Security Commission. Responsibility for the determination of occupations in which workers are needed and the selection of trainees rests with the Employment Security Commission. The Division of Vocational Education, through the public schools, is responsible for the training of those selected, and finally the Employment Security Commission is responsible for the placement of those completing these programs. It is anticipated that this new relationship will enable both agencies to be more effective in dealing with the problems inherent in the retraining of the unemployed.

Training of practical nurses. Another significant part of Michigan's adult vocational education is the training offered for practical nurses. This program is designed for out-of-school youth and adults and includes students of various ages. The trend, however, has been toward a younger age of those entering the program, many entering immediately after leaving high school. Most of these programs are offered through the community colleges. There is still a serious shortage of trained practical nurses, and these programs need to be expanded and extended to a number of additional Michigan communities.

Practical nurse programs are sponsored by local boards of education in cooperation with the State Board of Control for Vocational Education, the Michigan Board of Nursing, and the participating hospitals. At the present time, there are also five private or parochial schools of practical nursing. (Federal-state funds are not used for these private schools.) The Michigan Board of Nursing has the responsibility for approving local programs and establishing minimum standards pertaining to curriculum, facilities, and teaching personnel. State and federal funds for the support of these programs are administered by the State Board of Control for Vocational Education.

Adult education for the major occupational fields. Adult programs in agriculture are offered to both the young farmer and the well-established farmer who desires to improve his efficiency and productivity.

Classes for adults employed in sales and service occupations are offered throughout the state by many local schools. These classes are designed to improve techniques and technical know-how of management and sales personnel in fields such as retailing, wholesaling, insurance, real estate, and other distributive endeavors. Upgrading employed personnel for the job ahead is a major purpose in these classes. Successful business executives from the various areas of distribution serve as instructors of these classes, many of which are held in smaller communities.

Adult classes in homemaking education cover a wide range of subjects related to home and family living. It is interesting to note that a sizable number of men enroll in these courses. Homemaking and family life education has changed from teaching only foods and clothing to providing both in-school youth and adults with a broad range of educational experiences related to maintaining a home and family.

In addition to the apprenticeship program mentioned above, adult trade and industrial classes are offered in most of the major industrial centers of the state. Through these classes, employed workers are able to improve their occupational efficiency in almost any of the recognized trades. One of the fastest growing adult trade and industrial programs is that of foreman and supervisor training. A program for training service workers offers training for a variety of workers, including fire fighters, school custodians and busdrivers, and workers in other public service occupations.

Financing of Programs

ELEMENTARY AND SECONDARY SCHOOLS

About 57 percent of the budget of Michigan school districts comes from local funds and about 39 percent from state funds. The remaining 4 percent comes from federal funds and miscellaneous sources. In Michigan, local tax funds for the support of public education come entirely from local property taxation. State funds are obtained from statewide taxes — primarily the sales tax. Other tax sources for education include corporation franchise taxes, taxes on cigarettes and distilled spirits, taxes on telegraph and telephone services, and the tax on insurance companies doing business in Michigan.

State support for public elementary and secondary education in Michigan is obtained from two sources, the Primary School Interest Fund, and state aid. The Primary School Interest Fund is obtained from interest on money received in the past from the sale of public land. Certain of the taxes listed above are also earmarked for this fund. The amount of state aid that a district receives is based upon a rather complicated formula. Briefly, the State Aid Act specifies a gross allowance per pupil, or membership allowance, which shall be financed on a partnership basis by the local school district and the state. (It was $205 per pupil in 1961-62 and is $224 for 1962-63.) To this membership allowance is added the financial need for tuition aid, transportation aid, special education, and aid for financially distressed or hardship districts. The difference between this total and the amount the district receives from local taxes and from the Primary Interest Fund is the amount of state aid it receives, provided that it meets certain requirements regarding local tax effort.

State school funds in Michigan may not be used for elementary or secondary school building construction or for debt service purposes. Money for these purposes must be voted by the electors of the local district.

VOCATIONAL EDUCATION

Funds for the support of vocational education come from local, state, and federal sources. As previously mentioned, federal funds are derived from the various national vocational education acts, the National Defense Education Act, the Area Redevelopment Act, and the Manpower Development and Training Act. State funds are granted by the Legislature through annual special appropriation. Local funds are obtained through taxes assessed within local taxing units.

Over $9 million is being spent in Michigan each year for vocational education. This figure represents the money spent for administration, teachers' salaries and travel expenses, and teacher training. This figure does not include the cost of such items as buildings, equipment, and supplies. The cost of these latter items, were the amount known, would add significantly to the above figure.

Relative support. It is interesting to note that in the past 10 years, while the local share of the cost of vocational education has risen by 86 percent and the federal share by 134 percent, the state contribution has increased by only 29 percent.

On the statewide basis, combined federal-state vocational education funds make up less than one-half of 1 percent of the local school district budget. State appropriations for vocational education slightly exceed $1.5 million, while the total state appropriation for elementary and secondary schools is more than $292 million. In making such a comparison, it should be noted that most of this money is spent in Michigan (and in every other state) on providing a general education program for youth. This happens in spite of the fact that the comprehensive school has two main roles, both of which are of equal importance. The comprehensive high school should provide a broad general education for all youth, and for each youth that form of specialized education which will best serve his vocational interests and needs. For those going on to college, a college preparatory curriculum best serves the second purpose; but for those who will seek employment immediately after high school graduation or before, some other form of vocational preparation must be provided. The truth is that we are doing very little to meet the needs of this latter group.

With the rapid changes taking place in our society today, we must seriously face the question of whether we are adequately financing *all* phases of education.

Vocational education funds, state and federal, are distributed to local schools through the Division of Vocational Education of the Department of Public Instruction. Table 1 shows the total state and federal vocational education funds distributed in 1961-62.

Table 1

Distribution of Vocational Education Funds in Michigan (Federal and State)

For Year Ending June 30, 1961

Occupational Group	*Amount*	*Percent of Total*
Agriculture	$ 571,877.95	19
Homemaking	534,399.34	18
Distributive and office	290,355.74	10
Teacher education and research	229,668.83	8
Trade and industrial (including practical nurse)	1,346,471.57	45
Total	$2,972,753.43	100

Basis for reimbursement. Due to an increasing number of programs, reimbursement rates to local schools have gradually declined over the years to the point where they now average roughly 30 percent of the teacher's salary and 45 percent of his travel expenses. In order to receive reimbursement, schools must meet certain general criteria in addition to those that pertain to the specific type of occupational training.

These general criteria are:

1. That such education will be under public supervision or control
2. That the controlling purpose of such education will be to prepare individuals for useful employment
3. That such education (other than teacher education) will be less than that which leads to the bachelor's degree
4. That costs of instruction supplementary to the vocational instruction necessary for a well-rounded course of training will not be paid from federal or matching funds
5. That space and equipment for vocational instruction will be adequate
6. That courses of study will be adequate
7. That methods of instruction will be appropriate for vocational subjects

The State Board of Control for Vocational Education, through the State Director and his staff, is responsible for the development of a system of reporting and analyzing programs, as well as for periodic surveys through visitation, to make sure that the program of vocational education meets the conditions as required by the federal vocational education acts.

Teacher Education

INSTITUTIONS

There are ten institutions of higher education in Michigan, eight public and two private, that are currently approved to offer vocational teacher education programs. Over the years, the policy of the State Board of Control for Vocational Education has varied regarding the designation of teacher training institutions. Currently several institutions are approved to offer programs for the same field of study.

The following publicly supported colleges and universities are designated as vocational teacher education institutions by the State Board:

Type of Education	*Institution*
Agricultural	Michigan State University
Distributive	Michigan State University
	The University of Michigan
	Wayne State University
	Western Michigan University
Office	Michigan State University
	The University of Michigan
	Wayne State University
Homemaking	Central Michigan University
	Eastern Michigan University
	Michigan State University
	Northern Michigan University
	Wayne State University
	Western Michigan University
Trade and Industrial	Ferris State College
	Michigan State University
	Northern Michigan University
	The University of Michigan
	Wayne State University
	Western Michigan University
Counselor	Central Michigan University
	Eastern Michigan University
	Michigan State University
	Northern Michigan University
	The University of Michigan
	Wayne State University
	Western Michigan University

In addition to these eight publicly supported colleges and universities, two private institutions, Mercy College and Albion College, are approved to train vocational homemaking teachers. These two institutions, however, do not receive federal or state vocational teacher education funds.

FINANCING

A total of $225,000 was paid to institutions of higher education for vocational teacher training in 1961-62. Table 2 shows the percentage of teacher education funds expended for each service.

Table 2

Distribution of Vocational Teacher Education Funds in Michigan

For Year Ending June 30, 1961

Service	*Amount*	*Percent*
Administration	$ 4,587.17	2.0
Agriculture	29,693.27	12.9
Distributive	15,915.10	6.9
Guidance	41,577.27	18.1
Homemaking	37,032.64	16.1
Office	12,416.44	5.4
Statewide evaluation project	25,000.00	11.0
Trade and industry	63,446.94	27.6
Total	$229,668.83	100.0

During the past 3 years, $25,000 of teacher training funds has been used each year to finance a statewide evaluation study of vocational education. One of the responsibilities assigned to the Vocational Education Evaluation Project by the State Board of Control was to study the use of vocational education funds in Michigan. As a part of this study, a recommendation may be made to the Board that reimbursement for on-campus teacher education courses be gradually withdrawn. These funds could then be used for such things as research, in-service education, preparation of instructional materials, and other special projects that the institutions would not ordinarily undertake without extra financial assistance. These recommendations are based upon a study in which the institutions were asked to indicate which teacher education responsibilities they would assume depending upon reimbursement practices.

If these recommendations are adopted and put into effect, they could have a profound influence on the future of vocational teacher education in Michigan. It seems likely that a great deal could be accomplished that heretofore was impossible due to lack of financial support for special activities and research.

CERTIFICATION OF TEACHERS

In addition to the regular Michigan teaching certificate, teachers of reimbursed vocational courses must hold valid vocational certificates covering their specific teaching fields in order that local boards of education may receive reimbursement on teachers' salaries from vocational education funds. Qualifications for vocational teachers include both educational and work experience requirements. Until recently teachers in both secondary school and community college programs were required to be certified. However, a recent opinion rendered by the State Attorney General states that teachers in community college programs no longer need to hold teaching certificates in Michigan.

As far as vocational education is concerned, this changed policy will have little effect on the quality of instruction. Vocational teachers in the community colleges will still have to meet the minimum qualifications in their respective teaching fields for initial employment. However, additional professional course work, which is required under the certification procedure, is no longer required of community college teachers.

Types of certificates. In the case of secondary teachers, it is the responsibility of the individual teacher and the local board of education to maintain the validity of vocational teaching certificates. Three types of certificates are issued by the State Board of Education for vocational teachers: the vocational secondary provisional, the vocational secondary permanent, and the vocational special. The vocational secondary provisional is issued to qualified individuals upon graduation from college and entitles the holder to teach in the public schools. Upon completion of three successful years of teaching, within 5 years after issuance of the vocational provisional certificate, and after having taken additional professional course work, a teacher is eligible for the vocational secondary permanent certificate. The permanent certificate is valid as long as the holder teaches successfully 100 days out of every 5 years. Vocational special certificates are issued to vocational teachers who do not fully qualify for the provisional or permanent certificates provided that they meet certain minimum qualifications. The vocational special certificates are designed to provide for emergency conditions or for teachers of adult classes who are skilled in their occupational fields, but lack the professional teacher education courses.

Individuals obtain certification from the State Board of Education through the institution with which they wish to affiliate. The institutions advise their students regarding certification requirements. Individuals who come to Michigan after having received their training in another state are assisted in securing any additional course work needed.

Research

DIVISION OF VOCATIONAL EDUCATION

The Division of Vocational Education has a small research section headed by a research consultant. The position of research consultant for vocational education is not unique with Michigan, but few states have such a position.

The primary purpose of the Division's research activities is to stimulate and to help coordinate vocational education research throughout the state. The activities may assume a number of forms. Technical consultative assistance for vocational education research is made available to local public schools upon request. A limited amount of basic research is conducted in the field of vocational education by the research consultant, and the consultant staff may and often does conduct studies of its own. These studies are not only valuable in themselves, but they may help to stimulate and encourage the universities and colleges of the state to conduct needed research in vocational education.

Perhaps the most outstanding example of vocational education research in which the State Department of Public Instruction is performing a major role is the study known as the Michigan Vocational Education Evaluation Project going on at the present time. This project was undertaken at the request of the State Board of Control for Vocational Education. The purpose is to make a complete evaluation of vocational education being taught in the Michigan public schools today. Major responsibility for the project was assigned to Michigan State University, but almost all of the major universities of the state have been assigned significant responsibilities for various phases of it. Over 200 vocational educators, administrators, and general educators have been involved in it. Indeed, involvement of such a large number of people is viewed as one of the major values of the project.

The cooperative relationships generated by this project have been heartening. The executive committee for the project has been able to mobilize resources from many sources and to view the critical problems facing vocational education from a perspective that utilizes the best in vocational education leadership that the state has to offer. It would be unfortunate to lose the "head of steam" which this project has developed. Probably it can be safely said that at no prior time has vocational education in Michigan had a more favorable climate for progress through research.

If, as was previously mentioned, a portion of teacher education funds could be continually used for research, then it would seem that some type of advisory group would be needed to suggest priorities.

Colleges and Universities

Research has always been one of the major functions and strengths of our colleges and universities; Michigan is blessed with some of the outstanding educational researchers in the country. Most of the research in vocational education in Michigan, as in other states, is conducted by our colleges and universities. The staffs of these institutions do considerable research and, in addition, they advise graduate students in their research activities.

Because of their resources and research experience, the colleges and universities are often able to secure funds for research that are not readily available to other educational institutions. An example of this is a recent grant of $25,000 from Cooperative Research Program funds through the United States Office of Education to The University of Michigan for a study to determine the way in which various groups, such as labor, management, agricultural, and other lay persons perceive vocational education. Incidentally, this study is a direct outgrowth of the statewide Evaluation Project. Another study, also financed from Cooperative Research Program funds, a study of technicians in industry, was recently completed by Michigan State University.

Local Schools

It has been the policy in Michigan to search continually for new knowledge and new applications of existing knowledge in the operation of vocational education programs. In keeping with this philosophy, the Division of Vocational Education encourages and assists schools in developing pilot or experimental programs. Currently, three such programs are being operated. One is an experimental study comparing the accomplishment of students in a two-hour machine shop class with those in a three-hour class. Another project is attempting to develop a work-study program for students with less than average mental ability. The third is a work-study experimental program for students desiring to enter those farm-service occupations in which knowledge, skills, and understandings from business, agriculture, and trade and industry education are needed.

The Future

We must never be satisfied with our present educational program. We should maintain a healthy attitude of discontent, but with the secure feeling that our attempts to meet constantly changing vocational needs will be successful.

There are vast areas of unmet training needs. Relatively few programs have been directed to the unemployed, to women workers in occupations other than sales or clerical, to early school leavers, to workers in many of the service occupations, and to retarded or slow learners. As was previously observed, our school programs have been directed primarily to the college-bound boy or girl. There is a growing awareness on the part of educators that we must also meet the needs of employment-bound youth.

Unemployed Workers

Training programs now being developed through the Area Redevelopment Act and the Manpower Development and Training Act should be considered as mere beginnings in providing for the retraining needs of the unemployed. Ideally, we should not be in the position of having to wait for a worker to become unemployed before he is retrained for another occupation. We must develop techniques and procedures to determine in advance the future employment needs arising from automation and technological progress. The nature of the Michigan economy is such that unemployment will be prevalent in the state for some time to come. We must develop a long-term retraining program that will reach the majority of those needing it.

Retraining classes developed under the ARA and MDTA programs will reach relatively few of the unemployed. It has been estimated that, in Michigan, about 1 out of every 40 unemployed workers will be enrolled in such classes. In order to reach the others, considerably more effort will have to be expended. We will also have to gain a much better understanding of the psychological and sociological problems of the unemployed worker. For some, we no doubt must think in terms of providing basic educational skills prior to training them for occupational competence.

Technicians

Highly skilled technicians are found in all fields — agriculture, home economics, and business, as well as industry. The National Defense Education Act of 1958 stimulated the development of programs for the training of technicians in industry and, to some extent, technicians in business occupations. Relatively little, however, has been done to develop training programs for technicians in the other fields. The great need for the preparation of large numbers of technicians is evident. Michigan must meet this challenge of our changing society.

Some kind of cooperative planning is needed in regard to the development of technical training programs in Michigan. High quality technical occupational curricula are extremely expensive to develop and maintain. A coordinated plan should be developed in which the community colleges and other state-supported institutions of higher learning would agree on the need for the various technical curricula and on the institution or institutions in which such curricula should be developed.

Those institutions that are now or will be providing training opportunities for technicians need to examine critically the existing curricula, to determine needs, and to develop cooperatively the programs that will not leave Michigan "shortchanged" in its pool of highly skilled manpower.

Vocational Guidance and Counseling

All evidence seems to indicate that the status of vocational counseling in Michigan high schools is at an all-time low. Many counselors come from academic backgrounds. They have had relatively little work experience outside of the school program. As a result, they do a good job in that aspect of their task with which they are most familiar — guidance for college-bound students; they do a poor job in that aspect with which they are least familiar — guidance for employment-bound students. In view of our shortage of technicians and skilled manpower, it would appear that somehow we must remedy this situation.

Existing training programs for counselors in our institutions of higher education do not reflect much concern for guidance responsibilities in terms of employment-bound youth. This is tragic when we consider that roughly three-fourths of all Michigan students entering the ninth grade complete their formal educational preparation at or before high school graduation. High school and post-high-school counselors should be familiar with the many opportunities available to students through vocational education.

We should provide guidance, counseling, and placement services to young persons at least through the age of 21. Most counselors do a pretty good job of helping those who go to college secure admittance to the institution of their choice. Rare indeed, however, is the counselor who does a thorough job of helping employment-bound youth secure placement in the occupations of their choice.

Every school should have accurate up-to-date information on former students. Schools must improve their followup techniques. Effective followup studies are a must for a sound guidance and counseling program.

A high school diploma is not an automatic ticket to a job. It is often easier to gain admission to college than it is to secure a job. Young people are in need of assistance in deciding on a vocation, in preparing for it, and finally in securing satisfactory placement.

Research

Michigan vocational education research efforts have increased markedly in recent years. The Michigan Vocational Education Evaluation Project has resulted in a mobilizing of research effort never before attained. Plans must be made to continue the cooperative effort which this project has generated.

It is hoped that certain funds will be available for use by teacher education institutions for special projects including research. Criteria will have to be developed for the selection and funding of projects. Some type of committee should be developed to represent the teacher education institutions and to act in an advisory capacity concerning priorities for the use of funds. Such a group might also perform a coordinating function in determining needed research and in sharing the results of research.

It is anticipated that vocational education research efforts will be considered by the recently formed Michigan Educational Research Council, which will help coordinate all educational research efforts in the state.

Women Workers

By 1970 nearly one-half of all women aged 35 to 64 in the United States will be in the labor force, with the largest increase coming in the 45 to 54 age group. One out of every three workers will be a woman. Mothers now number almost half of all employed women. According to the Michigan Employment Security Commission, it is expected that about 30 percent of Michigan's work force will be women. The average working woman enters the labor force in her late teens or early twenties; she works about 4 years and then retires temporarily following marriage and the birth of children; at about age 35 she will return to the labor market. This situation produces an increasing need for retraining and upgrading programs. Working women also need assistance with home management problems as they fill their dual role of worker and homemaker. Much more emphasis is needed upon adult training, particularly in office, sales, and service occupations, if we are to meet the needs of our women workers.

EARLY SCHOOL LEAVERS

With the increased emphasis upon acquiring a college education in recent years, the persons who have not received much consideration are the boys and girls who are not going to college. A large number of young people must be provided with some type of specific and useful occupational training before high school graduation. Present high school programs are not adequately meeting the needs of a substantial proportion of youth. Vocational educators and general educators must work together to determine the kind of educational program that will meet the needs of those boys and girls who are not being motivated by present programs because the answer is not entirely more or a different kind of vocational education.

CONTACTS WITH INDUSTRY AND BUSINESS

One of the characteristics of outstanding vocational education programs is the involvement of agriculture, industry, and business in the development and operation of such programs. In fact, leaders in vocational education implore local communities to make extensive use of advisory committees made up of employers and workers.

The use of advisory groups from industry and business is just as important on the state level as on the local level. The use of industry-wide advisory committees or joint vocational education-industry groups can result in improved and more meaningful state-level assistance to local schools. Such groups can be instrumental in preparing instructional materials, helping to sponsor in-service teacher education programs, assisting in the determination of training needs, and setting an example for local schools to follow in working closely with business and industry. Even though Michigan has made use of such industry-wide groups in the past, considerable additional use of them is needed at the present time.

MULTISERVICE PROGRAMS

Many occupations have grown or changed in such a way that they now require knowledge, skills, and understandings in not only one but several of the traditional vocational education fields. As was pointed out earlier, agriculture and business are two fields that have a contribution to make to many of the same occupations. In addition, new occupations that do not fit readily into one of the established traditional vocational fields are constantly appearing, and vocational education will have to develop new programs based upon the educational requirements of these new and changed occupations.

AREA PROGRAMS

It has been implied throughout this paper that our present vocational education programs fall far short of meeting present-day occupational training needs. The vast majority of Michigan school districts do not offer truly comprehensive educational programs. Most districts do not have sufficient financial resources or students to afford comprehensive programs.

At the present time there are 537 high school districts in Michigan. If we consider the offering of reimbursed vocational education classes as one criterion of comprehensiveness, then it should be noted that only 12 school districts offer programs in all 4 fields of agriculture, homemaking, business, and trade and industry.

If school districts are to provide students with the opportunity to become competent in the occupation of their choice, a way of combining district resources will have to be found. Consolidation of high school districts may be a possible answer; but it is doubtful whether most Michigan school districts will ever attain sufficient size to be able to meet the educational needs of all their students. This is particularly true if districts continue to operate vocational education programs individually.

The concept of area vocational education has been present in the United States since the passage of the Smith-Hughes Act in 1917. It is based upon the philosophy that all qualified persons should have an equal opportunity to participate in vocational education programs of their choice regardless of the geographical location in which they reside, and regardless of their economic status or that of the region in which they live.

Michigan has a number of area vocational education programs being operated on a post-high-school level through community colleges and other institutions of higher education. Perhaps our secondary schools should consider the advisability of establishing area vocational education programs of their own.

USE OF FUNDS

Michigan is seriously studying the current use of vocational education funds. The statewide Evaluation Project has addressed itself to this problem, and vocational educators have been giving serious thought to the manner in which the very limited funds available can be used to maximum advantage.

The use of vocational teacher education funds is receiving careful consideration. Is there any reason why we should reimburse those regular teacher education courses that the institutions would continue regardless of reimbursement? Could these funds be better used for those teacher education functions that the institutions would not perform without extra financial assistance? Rather than reimbursing regular courses, these funds could possibly be used to reimburse more adequately vocational teacher educators in providing consultative services through visits to local programs, developing and distributing instructional materials, conducting special workshops and conferences for teachers, and conducting research and special studies. Procedures for the use of teacher education funds for these purposes must be developed, and priorities must be determined. The institutions themselves should help determine these procedures and priorities.

The federal vocational education acts were originally designed to stimulate the development of vocational education programs. This original purpose has been lost in the practice of maintaining programs within a fixed pattern. Some vocational educators are asking whether we should place more emphasis on stimulation and development.

Many crucial questions are being asked concerning high school vocational education programs. Should not vocational education courses be as basic as college preparatory courses in our high school curriculums? Should vocational courses be limited to the 11th and 12th grades? Can subjects below this level be justified as anything except general or basic education? Should we continue to reimburse established programs? Should we use funds only for the development of new programs? Should we use funds for the purchase of equipment? We will have to find satisfactory answers to these and many related questions.

POST-HIGH-SCHOOL PROGRAMS

Vocational education at the post-high-school level is at a critical point. There is no question of need. We must develop the skilled and technical manpower so desperately needed in modern society. Our community colleges are the most promising type of institution to meet most of the increased need for post-high-school vocational education. If our community colleges are to fulfill their role, they must become large-scale units and function as parts of a statewide coordinated system. These institutions must assume, on a broad basis, their responsibility for technical education.

We cannot place the burden of developing high-level technical programs on already financially strapped local school districts. Since the state and, in many fields, the nation, make up the "community" for which such programs are provided, the local community cannot be expected to bear the major share of the financial burden for providing them. We need greatly increased state support for vocational education programs at all levels, and the development of high-quality programs in particular must not depend upon the wealth of individual school districts.

PRECEDING PAGE BLANK-NOT FILMED

XV. An Analysis of Vocational-Technical Training in Minnesota

BY WILLIAM C. KNAAK[1]

Objectives

A summary statement of the objectives of vocational education in Minnesota might be: to provide opportunities in all phases of vocational-technical education for persons who are of sufficient age and maturity to profit from specific occupational training.

This means to provide training for boys and girls 16 years of age or older and to make it available to them for the rest of their working lives.

It means to provide training for individuals ranging from those who are barely above institutional care to those who could rank high in regular college courses if their interests and orientation had so directed them.

Training must be provided for all trade, technical, distributive, office, agricultural, and homemaking occupations. The level of training must range from simple operator skills for those with limited abilities to highly technical subject matter for those capable of making broad application of basic knowledge.

All vocational-technical training must be occupation oriented. Training that is not so oriented will lose its objective and not be worthy of the name. Some technical training is now provided that has employment in "clusters" of occupations as its objective. When this is the case, care must be taken to determine that the basic "core" of training given will, in fact, qualify the trainee for employment.

Training must meet the needs and requirements of both existing industry and new industry. In Minnesota, not a large market area, industrial expansion is occurring largely in the "brain industries," such as electronics. Training must anticipate this trend.

Employed adults must have the opportunity to take training in order to advance in their occupations and keep abreast of the times. A special effort needs to be made to encourage the unskilled worker to take training because his position is precarious. It has been said that today the unskilled worker who carries his lunch is an optimist.

Training must be provided for the unemployed whose skills have become outmoded or who live in chronically "depressed" areas and must qualify for employment elsewhere.

Welfare cases should be trained to become self-supporting whenever possible. At a recent state welfare conference in Minnesota, the Governor challenged the group to abandon its caretaker role and concentrate on rehabilitation. At the same conference the Commissioner of Welfare cited the need for helping the "vocationally handicapped" — persons with physical, mental, or emotional handicaps who cannot get jobs.

Women make up a substantial part of the labor force today, and all indications are that they will continue to do so. Women are to be found in large numbers in light metals and fiberglass fabricating plants as well as in office, distributive, and service occupations. Women tend to work a few years, drop out to raise a family, and then reenter the work force again. This may require refresher training. The new dual role of homemaker and wage earner presents some difficult problems for women to face, and it presents the vocational home economics educator with a real challenge to help the homemaker-wage-earner understand her dual role and function properly in it.

Education System

Minnesota's public school system is under the jurisdiction of three separate governing boards. The State Board of Education is appointed by the Governor with confirmation by the State Senate. The State College Board is appointed by the Governor with confirmation by the Legislature, and the University Board of Regents is elected by the Legislature from specified areas in the state. Each board chooses its own executive officer, and each board functions independently of the others. Although it has never been a publicized problem, the three boards are, in effect, in competition with each other for funds in the Legislature. The Legislature recognizes this competitive situation; it also recognizes that there is a possibility of duplication of services since all three boards are responsible for some higher education.

---

[1] Director of Business Affairs, White Bear Lake Area Schools, Minnesota; formerly Assistant State Director of Vocational Education, Minnesota State Department of Education.

Because of the duplication potential, the 1959 Legislature authorized the appointment of the State Liaison Committee on Higher Education, made up of three representatives each of the State Board of Education, the University Regents, and the State College Board. This committee is responsible for resolving such differences and duplications as may tend to develop, with the underlying implication that, if it cannot do so, the Legislature will, through legislation.

THE STATE DEPARTMENT OF EDUCATION

The State Board of Education, the Commissioner of Education, who is appointed by the Board, and his staff make up the State Department of Education. The present format of the Department had its beginnings shortly after the passage of the Smith-Hughes Act in 1917, when a State Board for Vocational Education was appointed. After the State Board of Education was organized, it became also the State Board for Vocational Education, and the functions of the two boards became merged.

The jurisdiction of the Board ranges from kindergarten through junior colleges and area vocational-technical schools. To make intelligent policy decisions in such a broad spectrum of educational institutions with varied objectives requires considerable depth of experience and much conscientious study.

The Department of Education carries on all business with local school districts through the school superintendents, who are the legal officers of the local boards of education. Each local board has broad powers to provide for the education of the youth in its district. Some local boards are responsible for the education of children from kindergarten through junior college and area school, including thousands of adults in vocational evening extension classes. With such a breadth of educational responsibility, many local boards have to rely quite heavily upon advice from school administrators for decisions concerning vocational education. Local boards are elected by the legal voters of their respective districts, and they reflect the attitudes of the electorate. It is not uncommon, therefore, to have persons on a local board who are indifferent to, if not actually hostile toward, vocational education or certain areas of it.

The Minnesota Legislature adds substantially to the amounts of federal aid available for vocational education under the provisions of the federal education acts. In fact, the legislative allowance for 1961-62 was more than $3 million. The specific distributions of these aids, made by the Board of Education, will be discussed in connection with specific vocational curriculum areas.

THE HIGH SCHOOL AND VOCATIONAL-TECHNICAL TRAINING

A reorganization of school districts into larger districts has been strongly encouraged in Minnesota on the theory that districts should be large enough and have enough resources to provide complete education, including vocational education, for youth from kindergarten through the 14th year. As a result, there has been considerable reduction in the number of ungraded elementary school districts in the state, but actual progress in redistricting secondary schools has not been significant. The number of small secondary schools without sufficient resources or students to support a complete program, particularly a complete vocational education program, remains high. Attempts by the Department of Education to formulate and enforce rules and regulations designed to compel high school districts with small enrollments to join with other districts have been largely nullified through action by the Legislature.

High school classification requirements for state aids provide some "encouragement" for vocational education. Foundation aid is paid to the local school district on the basis of pupil units. It is the difference between what the local district can raise per-pupil unit with 19 mills on its adjusted assessed valuation and the average expenditure per-pupil unit in the state. Pupil units are determined as follows: Kindergarten students, one-half unit; elementary students, one unit; secondary school and area vocational school students, one and one-half units. If a school district has a recognized junior high school program with three "special" departments selected from agriculture, home economics, business, or industrial arts, it may qualify for the one and one-half unit rate for foundation aid. The "encouragement" for vocational education is the payment of aids on the basis of one and one-half units per student in "approved" high schools and in junior high schools with special departments.

The equalization factor in the per-pupil aids has not been substantial enough to bring about significant balancing of the amount of money available to all school districts. Furthermore, no state aid is provided for plant construction and debt service, and this penalizes vocational education because the cost of constructing vocational education facilities per-pupil unit is significantly higher than is the cost of constructing most other school facilities.

Direct reimbursement for vocational salaries, travel, and, in some programs, equipment has been more influential than foundation aid in the encouragement of vocational education. The amount of money needed during the biennium for the customary aids for vocational education is estimated by the State Director and submitted to the Commissioner and State Board. After their approval, the estimate becomes a part of the total state aid request. The Minnesota Legislature has consistently supplied all of the funds requested for vocational education. In recent years there has not been any arbitrary cut in or even quibbling over the amount to be spent for vocational education.

The net result of the described aid policies is that the amount of vocational education being provided by high schools varies considerably among high schools and among services. The "comprehensive" high schools, in general, have not been able to provide adequately for vocational-technical training in all fields. Their participation in approved reimbursable vocational-technical programs in 1961-62 was as follows: technical, 0 percent; trade and industrial, 4 percent; distributive and other cooperative part-time training programs, 18 percent; agriculture, 58 percent; office, 72 percent; and home economics, 88 percent.

Home economics education. More high schools teach home economics than any other vocational subject. There are several identifiable reasons for this — and perhaps other reasons not so readily recognized. The need for training in homemaking is universally respected. The objectives of the program are easily understood by local boards of education. Furthermore, home economics is required of an approved junior high school, and with a little additional effort, as observed earlier, the school can qualify for senior high school state and federal vocational aids. The one-hour block of time required for classes also fits readily into a standard secondary school class schedule. It is a well-accepted elective for girls planning to go on to college as well as for girls who will enter employment or become homemakers. Vocational aids offered are typically 50 percent of the day instructor's salary and travel and 75 percent of the adult evening instructor's salary and and travel. State money spent for home economics in 1960-61 totaled $751,985, as compared with $168,321 of federal funds. Home economics has had the benefit of strong state leadership over a period of years, and a solid majority of the departments are physically well equipped according to state standards.

A strong Future Homemaker of America program, highlighted by state camp activity, district meetings, and a state meeting, provides excellent opportunities for leadership development. It has also served as a proving ground for future home economics teachers.

Office education. Office training gained an early start in Minnesota high schools. The fact that many high school graduates enter office work, both at home and elsewhere, in "prestige" white-collar occupations is readily understood by school administrators and parents. Administrators are also somewhat familiar with basic office occupations. Many of the courses, such as typewriting and bookkeeping, have considerable general educational value, so that there is little concern about whether a student profits from taking such courses. For the most part, office education classes fit nicely into the academic schedule, and they can accommodate about as many students as can a regular academic class. The last factor helps to keep costs down even though equipment costs are somewhat higher than those for other classes. Availability of office education teachers has never been a problem.

The field of office education, however, has had several handicaps. The lack of federal recognition and federal funds has made it difficult to obtain and keep an adequate state supervisory staff. In fact, at the present time, there is no consultant on the state staff who has office training as a major responsibility. Because of this, attention to curriculum revision and standards has lagged.

High school teachers in office education have never had to meet occupational experience requirements common in other vocational fields, and many of them have not had office experience. As a result, these teachers tend to align themselves with academic teachers, stressing the general education values and minimizing the vocational "bent" of their courses. It also means that the instructor often is not able to supply relevant occupational information to the students. Offerings in small high schools are frequently limited to one or two courses, not enough to qualify graduates for job entry. In general, although office education is the second most prevalent vocational course in Minnesota high schools, there is still much to be desired in terms of meeting the needs, especially since there is an increasing need for trained office workers, as Employment Security research figures indicate.

Agricultural education. Minnesota has probably come closer to meeting the vocational training needs of the state in agricultural education than in any other vocational field. A majority of local school boards in the state are made up of farmers or of townsmen who are responsive to farm voters. It has been fairly easy for them to see the value of agricultural training in their home areas. It has also been to the farmers' advantage to participate in the adult vocational agriculture programs. Usually, only its small size or lack of resources keeps a rural community from developing a vocational agriculture program. Aids provided include 50 percent of day instructors' salaries and travel and 75 percent of adult instructors' salaries and travel. State money spent on agricultural education in 1960-61 amounted to $886,851, supporting $354,394 of federal funds.

The Minnesota Future Farmers of America has had excellent leadership, and it serves several purposes. It provides a club medium through which enriched instruction may be carried on. Through contest, camp, and local activity, it has provided many opportunities for F.F.A. leadership training. Finally, F.F.A. is of tremendous public relations value to vocational agriculture. At local, state, and national levels, the blue-jacketed, well-spoken F.F.A. representatives gather solid support from industry, commerce, and agriculture for the vocational agriculture program as a builder of men, as well as for instruction in agriculture.

More than 90 percent of the teachers of vocational agriculture in the state are graduates of the University of Minnesota. This commonality of alma mater has provided the basis for a tightly knit state organization of teachers of vocational agriculture that is effective when working on state and national legislation for vocational education.

Agricultural education in Minnesota is faced by one gnawing, persistent problem — the decline of interest in agriculture by some rural youth. In poor or "marginal" agricultural areas, some principals and counselors report difficulty in convincing farm boys that it might be advisable to take agriculture subjects. They and their parents may be reacting to national publicity on the decline of opportunities in agriculture and to their own farm income situation. This difficulty usually appears in vocational agriculture programs that have weak instructors or poor facilities. But in some poor agricultural areas, even good instructors are having difficulty holding a minimum number of students. The small school experiences the most difficulty.

The first step in meeting the situation is usually to combine the various grade levels of agriculture in order to make a suitable-size class, and to assign the instructor to some teaching duties other than agriculture. With a part-day program, pressure then mounts to convert the agricultural shop facilities to industrial arts and other uses. It is not reasonable for a State Department of Education to insist that shop and classroom facilities be held open and available for agriculture when there are not sufficient agriculture students to utilize them.

Agriculture is still a substantial and influential industry in our state, and there are still opportunities in farming. But the indications are that the number of individuals needed in farming will continue to decline. On the other hand, the caliber of individual needed, particularly in management areas, will rise. There is also an expanding need for adult training, so that those presently in the farming business may keep up in the industry.

As for preparatory agricultural programs in high schools, it would seem that fewer programs, generally located in the larger centers, with emphasis on agriculturally related programs, might be a partial answer. This will be discussed further in the section on area vocational-technical schools.

Distributive and other cooperative part-time training programs. The first cooperative part-time training program in Minnesota was organized in 1945. At present, there are 87 such programs, classified as follows: distributive, 32; office, 26; miscellaneous trades, 8; diversified, 21.

Enrollment in high school distributive education programs in Minnesota has grown modestly, but steadily, to a 1960-61 enrollment of 682. Total enrollment of all cooperative part-time training programs was 1,624. All of these programs are under the supervision of the State Distributive Education Supervisor, although the trade and industrial state staff gives some help with miscellaneous trades.

The part-time training program has many educational advantages. It gives students the opportunity of career exploration in a meaningful way. It gives students an opportunity to apply the knowledge and skills learned while in school. It provides earn-while-you-learn advantages for students with parents of very limited means. It may help reduce dropouts. The program may reduce school costs because some of the "laboratory" facilities are provided on the job, and classroom space may be released for other uses. Available evidence seems to show that students who choose distributive education in high school and later elect to continue their formal education do as well in college as other students of comparable ability.

However, distributive education is not always readily accepted as an educational program by school administrators. The academically trained administrator sometimes rebels at the thought of giving school credit for work carried on away from the school. Furthermore, regular academic classes for part-time students must ordinarily be scheduled in the morning, thus curtailing the principal's scheduling freedom. There is also some reluctance to recognize such training as a bona fide program for persons of above-average ability, even though their interests and talents may orient them toward distributive education. Some school administrators believe that this program should be only for the potential dropout or for those who do not have collegiate ability.

The primary restrictive factor for high school part-time training programs in Minnesota has been the limited number of cities large enough to provide on-the-job training stations for this type of program. This has led to approval of "diversified" training, which combines distributive, office, and trades occupations into one program. Such programs meet some of the objectives of cooperative education, such as career exploration, but they can scarcely provide meaningful related training to such a heterogeneous group of students. In the judgment of the state supervisor, if a city is large enough to support a "pure" program, diversified programs should not be approved. Cooperative part-time training programs are ordinarily reimbursed to the extent of 50 percent of the day instructor's salary and travel and 75 percent of the evening distributive salary. Reimbursable part-time training programs in 1960-61 received $232,458 in state and local funds and $26,772 in federal funds.

Using state funds only, Minnesota has reimbursed part-time cooperative office training programs in a similar manner. These programs have proven to be the most "solid" of part-time training programs in terms of the availability of good training stations (especially in metropolitan areas), the development of meaningful related training in school, and the high percentage of trainees remaining in the occupation after graduation. It is particularly effective in the field of clerical occupations. This is a vocational program that should be expanded in Minnesota and, we believe, is deserving of federal encouragement and support.

The miscellaneous trades part-time training program in Minnesota has never been extensive, and it is not expected to grow substantially. In metropolitan areas, apprentices are not permitted to enter most "organized" trades until they are at least 18 years old. This limits the availability of trade training stations and also the variety of occupations in which training may be given.

The Minnesota part-time training program also has a state club organization known as the Minnesota Diversified Vocations Club, which serves the same function as the F.F.A. and F.H.A. in providing opportunities for leadership training and social growth.

The teacher is a critical factor in the success of all vocational programs, perhaps even more so in cooperative part-time programs. The coordinator teacher must be effective in working with the "downtown faculty" as well as in instructing and counseling students. When coordinator teachers have been well trained, meet all qualifications, and are selected on a competitive basis, they tend to do a better job than persons of limited, minimum qualifications who are "promoted" to the position.

Twenty percent of the persons employed in Minnesota are in distributive occupations. The 7 percent of the state's high schools offering training in distributive occupations are not enough. It has been estimated that there are still at least 20 communities large enough to support distributive education programs which do not presently have them. A concerted effort to alert these cities to the needs of their youth is planned for next year.

A field instructor in distributive education is employed by the State Department of Education to help small communities meet their adult distributive education needs. This instructor travels extensively, organizing and teaching distributive classes throughout the state.

Trade and industrial. Most of the vocational trade and industrial training in Minnesota is offered in the 12 area vocational-technical schools, more specifically discussed later. On the average, these area schools are now offering about half of their programs at the high school level and half at the post-high-school level. More specifically, outside of Minneapolis, more than 60 percent of the trade and industrial enrollment is at the post-high-school level, while Minneapolis, offering a variety of 30 trade and industrial courses, and having the advantage of a large metropolitan labor placement market, has had continued success with high school trade and industrial programs. But it, too, is moving gradually into post-high-school programs in most trade areas. Trade programs in comprehensive high schools, with a few exceptions, have not been very successful. In fact, there were only 12 comprehensive high schools offering such programs in 1960-61.

The identifiable reasons for failure by local boards of education to adopt trade programs are varied, as might be expected. One is undoubtedly the confusion that exists in the minds of many local board members and some educational administrators as to the difference between trade and industrial training and industrial arts. It is not uncommon to talk to local board members who are convinced that they are fulfilling their responsibility for providing vocational trade training by offering a good industrial arts program. This is certainly understandable, particularly since industrial arts teachers are supervised by the state trade and industrial staff, and many of the industrial arts teachers are active members of the state vocational association. Furthermore, to a lay person or a general educator, the instructional equipment looks much the same as that found in a trade shop. The point is that industrial arts does not prepare a student for job entry, as vocational education must.

Once local school officials understand what a trade program is, there are other problems. A three-hour block of time may make scheduling of academic classes difficult. The thought of paying a tradesman without a degree a salary comparable to, or better than, that paid a staff member with a degree is often unpalatable. Instructional equipment and supplies are expensive, and space requirements may seem fantastic to a general educator.

There are educational limitations to high school trade and industrial programs. One of these limitations is the lack of breadth to the program. If school resources are limited to one trade program, should it be auto mechanics, or something else? Does this mean that everyone in the school who wants to learn a trade should be an auto mechanic? The result is that the enrollment in the course consists of boys who want to learn a trade, but not necessarily the one being offered. Decisions as to who will be enrolled in the class are often made by principals or counselors with little knowledge of the criteria for selecting students who can profit most from the course.

Some of the limitations of a single trade program in the comprehensive high school revolve around the instructor. He will often work a six-period day — one period longer than a normal teaching load. If he is paid extra for the extra period, staff resentment may follow. If he is not paid extra, the teacher may resent the extra time required. Working with vocational advisory committees and seeking placement opportunities for the graduates are two very important aspects of his job. Yet the importance of these aspects is usually not fully understood by his superiors or teaching colleagues.

His in-school load will be as large as or larger than that of the academic instructors, and the temptation to pass lightly over advisory committee and placement responsibilities is considerable.

Furthermore, Minnesota is experiencing a rural-to-urban youth movement common in many agricultural states. Many of the jobs for which trade training is needed are found only in urban areas. It thus becomes virtually impossible for a trade teacher to carry a full teaching load and still carry on advisory committee and placement activity away from his local community.

It has become the general conclusion of the state staff that one-teacher trade programs in outstate high schools are not generally effective, and no great effort is being made at this time to promote such programs in additional high school districts. Going programs are provided with supervisory and consultative services, but unless the school district has adequate resources to offer at least three trade programs with a full- or part-time coordinator, the chances for quality trade and industrial courses are not good. There are relatively few high school districts in the state capable of operating three trade programs without obtaining assistance under the area school law.

Successful high school trade programs are conducted in the area vocational-technical schools, which will be discussed a little later. At these schools there are qualified directors and coordinators as well as instructors who carry on the liaison work with industry. The school director, who is usually the immediate supervisor, understands the needs, problems, and responsibilities of the trade teacher; and he is able to provide much instructional assistance.

Trade programs in high schools are usually reimbursed for 50 percent of the day instructor's salary and travel and 75 percent of the evening instructor's salary. In 1960-61, the trade and industrial programs received $766,797 in state funds and $79,713 in federal funds. These amounts are for both high school and post-high-school programs. Federal money for trade and industrial education is very inadequate, and without considerable state aid there would be substantially fewer programs.

A team of 12 trade and industrial field instructors operating under the supervisors in the state trade and industrial vocational unit bring instruction in electrical, fire, and steam boiler safety to many outstate communities.

Guidance in the secondary schools. The National Defense Education Act of 1958 provided a tremendous boost to guidance in the secondary schools.

One of the most significant aspects of the improved counseling program is the increase in the number of certified counselors. Qualifications for a counselor's certificate include a valid teaching certificate based on a bachelor's degree, a master's degree, or its equivalent, with course work in specified course areas; a minimum of one year of work experience outside of education; and at least one year of successful teaching experience.

The results of this rapid increase in the number of counselors are becoming apparent. Although no research has been conducted to determine whether counselors are actually becoming more vocationally oriented, we do know that they now request a great deal more vocational literature, invite vocational directors to their schools more frequently, and refer more students to area vocational schools. The counselors built their April 1962 annual state conference program around non-college-bound youth.

This is not to imply that Minnesota counselors are neglecting the precollegiate students. Nor should it be inferred that there are no longer counselors in the state who put their total effort on academic educational counseling and neglect vocational counseling. It does imply that progress in getting well-trained counselors in Minnesota high schools has been made, and that, based on initial indications, the results will be favorable to youth needing vocational guidance and training.

Summary of vocational training in high schools. In summary, a number of variable factors determine the establishment and success of vocational training in the comprehensive high school. Essentially, these variables are (1) the size and wealth of the school district, (2) the orientation or "enlightenment" of local school boards and school administrators concerning vocational education, (3) the local need for the program, and (4) the ease with which the program can be worked into the regular academic schedule by school administrators.

It does not seem likely that the desired objective of having all school districts become large enough to accommodate kindergarten through the 14th year, including comprehensive programs of vocational training, can be reached soon enough to meet the accelerating job-training needs of youth. Nor does it seem that there is any hope that even a significant minority of high schools will provide trade or technical occupational training. In Minnesota it appears that we will lean even more heavily upon area schools for high school and post-high-school trade and technical training.

THE AREA VOCATIONAL-TECHNICAL SCHOOL

The area vocational-technical school, the newest institution in public education in Minnesota, was authorized by legislative act in 1945. Since then, 12 area schools have been approved by the State Board of Education, two districts have completed surveys preliminary to securing Board approval, and inquiries regarding requirements for area school designation are increasing. Initially the area schools were largely high schools, but increasingly they are becoming post-high-school institutions.

Area vocational-technical schools had their inception in the failure of other institutions to provide the vocational-technical education needed by youth and adults.

Specifically, when the Legislature passed the area school law in 1945, the following conditions prevailed.

1. Only six high school districts outside the three cities of the first class offered preparatory trade programs. Ninety-three percent of the total enrollment in trade and industrial programs was in Minneapolis, St. Paul, and Duluth. Rural and small town youth had no opportunity to obtain trade or technical training unless their parents could finance them at a private trade school in the Twin Cities.

2. War production training had slackened, and regular evening extension trade and industrial training was at low ebb — only 660 such students were enrolled in the state. This was a serious situation because it occurred at a time when Minnesota's economy had swung toward industrial emphasis, and the employment effects of automation were becoming evident. Apprenticeship training was inadequate in many areas. The World War II years had seen a movement of skilled people out of Minnesota to the West Coast, and skilled manpower was in short supply.

3. The postwar market was about to be flooded with a host of new consumer products including automobiles, appliances, and other electrical-mechanical devices, which we were ill equipped to service and repair. Many occupations were demanding more exacting degrees of skill and greater technical knowledge.

4. The holding power of the secondary schools was considered unsatisfactory, with only 63 percent of those enrolled in grade 5 completing grade 12.

Out of the foregoing conditions came the language of the area school law. "It is the purpose of this section to more nearly equalize the educational opportunities in certain phases of vocational-technical education to persons who are of the age and maturity to profitably pursue training for a specific occupation."

In the years since 1945, considerable progress has been made toward fulfilling the objectives of the law.

1. High school and post-high-school preparatory trade and technical enrollment has increased by over 100 percent.

2. By 1961, high school and post-high-school day enrollment in trade and technical classes outside Minneapolis, St. Paul, and Duluth had increased from 7 percent to more than 50 percent of the total enrollment. Adult evening school trade and technical enrollment increased more than 10 times. Area schools are cooperating with joint apprenticeship committees in providing related instruction for apprentices through all areas of the state where area schools are located. In 1960-61 there were 2,522 trade and industrial apprentices enrolled in vocational schools and 12,428 other tradesmen in extension training. Of these, 3,633 were enrolled in technical extension courses. Industrial advisory committees are assisting in keeping courses and equipment up to date so that employed persons can keep up with their occupations.

3. Cooperative part-time distributive programs have been made available to area students. Two area schools, Thief River Falls and Winona, are staffing post-high-school distributive programs to start in the fall of 1962.

4. Nine of the area schools have developed vocational agriculture programs. They employ a full-time vocational agriculture coordinator who works on an area basis, preparing farm management analyses and instructional materials based on these analyses. One area school has developed a one-year post-high-school training program for boys going into farming that includes a plan for financial assistance in getting started in farming.

5. Six area schools offer one-year post-high-school business training courses designed to enable the office trainees to become vocationally competent. These courses fill a particular need created by the inadequate business education departments of the small high schools.

6. All area schools have extensive evening programs in home economics. They offer a broad range of courses attended by homemakers from as far as 50 miles away.

7. Technical training under the National Defense Education Act of 1958 has been authorized in area vocational-technical schools and more recently in junior colleges. At present there are NDEA Title VIII programs in only the area schools, but two junior colleges have programs under consideration.

Primary efforts in the development of technical education have been exerted in the area schools where sympathetic administration and established liaison with industry already exist. Nearly all of these programs are on the post-high-school level. Two area schools, however, allow high school seniors to start in electronics with the expectation that the students will continue at the post-high-school level.[2]

8. New courses are developed and added where there is occupational demand. This has occurred most recently in industrial electronics and tool design. Other occupational fields currently under analysis in which

---

[2] It has been the opinion of the writer that high school graduation and a solid mathematics background should be prerequisite.

My recent observations have been that it may actually be easier for a large high school to carry on technical training than trade and industrial training. Space requirements are not significantly greater than those for a chemistry or physics laboratory. Equipment is expensive, but reimbursements under Titles III and VIII of the NDEA have lightened that burden. Technical education has academic respectability, and block scheduling is not mandatory for successful instruction. A large high school may have a sufficient number of qualified students. The nature of the work in electronics is such that a bright student may move at a tremendous pace and not be hindered by the speed of a machine or by the limitations of other classmates.

In brief, a high school that graduates more than 200 students annually probably could, with careful screening, produce 15 bright non-college-bound technicians each year. But the typical high school could not do so. Furthermore, the typical high school is not likely to have personnel qualified to teach industrially oriented courses, to have available the necessary industrial advisory committees, or to be able to provide placement services.

courses are expected to be organized include chemical laboratory technology, instrumentation, reproduction technology, medical laboratory assisting, dental assisting, and data processing.

The previous statements reflect the progress and growth of area vocational-technical schools in Minnesota, but there is a need for more area schools for a number of reasons.

1. Technical, trade, and industrial training is still lacking in comprehensive high schools. In 1960-61 only 4 percent of senior secondary school districts other than area schools offered day preparatory technical or trade training. No junior colleges offered technical or trade training that met the standards of the Minnesota State Plan for reimbursed programs.

2. An increasing number of young people will be graduating or leaving our high schools and seeking employment. In 1962, 38,000 graduated; in 1964, the number will be 43,000; and in 1965, 48,000. And against this outpouring of high school graduates, all indications point to a decreasing demand for the untrained and the unskilled.

3. Reliable sources indicate that most future industrial development in Minnesota is likely to be in the "brain industries" such as electronics, tool design, and data processing. At present the area schools are the only institutions staffed and equipped to train young people for nonprofessional technical jobs.

Area school accomplishments have been achieved with maximum local district participation in survey of needs, planning, financing, and construction of facilities. All construction cost must be borne by the local district, that is, the regular school district. None of the 12 area schools enlarged its district immediately before or after receiving area designation. All equipment costs, except for practical nursing and NDEA technical, are paid by the local community. However, area school districts are assured costs for serving nonresident post-high-school students, which costs include a proportionate share of the cost of debt service on buildings and equipment. We believe that this system has considerable merit, since it relieves the local district of responsibility for educating trainees from other districts, and it also makes it financially expedient for area schools to recruit nonresidents. In 1960-61, $225,000 in differential aid was paid to the area schools; the amount for 1961-62 exceeded $315,000. Since the foundation aid given varies according to the wealth of the district and is based on both high school and post-high-school students, it is not possible to state categorically how much state aid is being given per pupil in all of the area schools. Foundation aid for post-high-school students in 1960-61 was $99,000. Of all vocational aid to area schools, the portion that is federal money varies from 18 to 35 percent.

Since nonresident high school age students may attend an area school only if their local districts give consent and pay their tuition, based on costs, the local district may then collect the foundation aids just as if the students were in local attendance. Most small high school boards will not give this consent since they are anxious to keep their enrollments up. This does not concern the area schools greatly because in most cases they prefer to enroll high school graduates with their added maturity and better scholastic background.

A more serious problem is the high school dropout. If a student drops out in the 10th grade and later seeks to enroll in the area school at the age of 19, for instance, he is still not a high school graduate and must solicit the consent and financing of his local board. This is usually not forthcoming, and the student cannot attend unless he is willing and able to pay his own tuition as an adult. Adults (those over 21) pay tuition based on area school costs, ranging from $30 to $55 per month.

Area schools exercise admittance prerogatives based on the applicant's past school and work record, aptitude and ability tests, and personal interview. Area schools need not accept students who cannot be expected to profit from training in the occupation of their choice. Such students are usually counseled regarding possibilities in other occupations, or they may be enrolled on a probationary basis.

Area schools have been experiencing a decided trend toward post-high-school attendance. In fact, the increase in post-high-school attendance has been at the rate of more than 20 percent a year. The reasons for the increase include the mounting demands of occupations, students' desires to graduate from their "home" high schools, and the fact that the area school law favors nonresident post-high-school attendance. Although high school trade graduates have been placed in trade work regularly by area school directors, especially in certain occupational areas, employers, when given a choice, will nearly always choose the more mature post-high-school trade and industrial graduate. Hence, when high school and post-high-school students are in competition for training stations in the school, as is increasingly the case, the high school student may lose out. When the area schools were primarily high schools, the general education subjects such as social studies were handled by regular secondary school staff. This procedure is still followed for area high school students. But for the most part, general education subjects are not available to post-high-school students. Area schools therefore have been criticized by some educators for being too technical, offering only skill courses, technical courses, related mathematics, related science, and in some cases, related communications, but no humanities.

Area school directors and others have replied that post-high-school students have had 12 years of social studies, history, English, and other humanities — that they should expect to continue such studies formally and informally throughout their entire lives. The area school point of view is that an individual should expect to devote 1 to 2 years of his life to learning the rudiments of an occupation. It is this occupational training that the area schools take as their bailiwick. They contend that the members of the vocational school staff are expert only in occupational training. Convinced that a great deal in the way of desirable attitudes and human relations is absorbed through occupational training, most area school personnel believe that the limitations of time necessitate the elimination of purely academic subjects from the post-high-school curriculum.

All area school administrative, supervisory, and instructional staff members in all of the vocational fields are required to have at least 3 years of noneducational work experience beyond the learner level. For a time, this created a problem in obtaining instructors with degrees, especially in the trade and technical fields. When it came to a choice between adequate experience and a degree, experience was considered the more significant. In the past 2 years, however, we have noted an increasing availability of instructors who have both the degree and the occupational experience. This has come about partly because of an increased awareness of the area vocational programs and also because an increasing number of area school graduates seem to be getting industrial experience, acquiring degrees, and coming back into vocational teaching. We are now in the process of working out a sustained teacher recruitment program to be directed at past area school graduates now in industry.

The Minnesota State Plan provides for the reimbursement of the cost of area vocational counselors. At present only 3 of the 12 schools are utilizing the plan. Most of the other schools depend on the director or coordinator for counseling, or utilize the secondary school counseling services. Area vocational counselor requirements are stringent. They require a regular state counselor's certificate plus credits in the philosophy of vocational education and 2 years of noneducational work experience.

A pilot project is now under way to measure the validity of entry tests being given to electronics and auto mechanics students. If this project appears meaningful, it may lead to an IBM system whereby every student entering an area school will have his test and interview data recorded on an IBM card for later comparison with first-year grades, second-year grades, and followup data. Over a period of time, these data could shed much light on the validity of aptitude and ability testing in the state.

Course content in area schools has been typically worked out by the local instructor in consultation with a local advisory committee. Increasingly, however, we see less justification for curriculum differences between schools, since all recruit from a common student market and place graduates in comparable jobs throughout the state. In technical areas, such as electronics and tool design, curriculum content is determined by a state advisory committee whose members have available course material from other states, in addition to their practical knowledge, as a basis for making content decisions. Perhaps this practice should be followed in many other fields.

Certification requirements for directors include 5 years of experience as a teacher, supervisor, or coordinator in a vocational program with at least 1 year of supervisory experience, 3 years of work experience outside of the educational field, and a bachelor's degree. Most directors have master's degrees. Area school directors have become skilled in the art of public relations and occupy a part of their time in career days, calls on schools, news media contacts, developing brochures, and other promotional activities.

At the state level, the Assistant State Director of Vocational Education is specifically charged with spending 50 percent of his time in the administration, supervision, and promotion of the area vocational-technical schools. His area school activities include:

1. Conducting area directors' conferences, at which policy and philosophy of area schools, in addition to administrative matters, are frequently the discussion topics.
2. Reviewing the area school requests for foundation and differential aids and making recommendations to the State Director therefor.
3. Coordinating the efforts of the other supervisory staff in providing consultative services to the area schools.
4. Providing consultative services to area school directors and superintendents on matters of new programs, advisory committees, finances, legal matters, and promotional efforts.
5. Providing consultative service to communities seeking designation as area vocational-technical schools.
6. Serving as area school consultant to various state advisory committees on youth.
7. Speaking for the area schools at state level meetings, such as the state welfare conference, superintendents' meetings, and counselors' gatherings.
8. Providing leadership for the continuing improvement of selection procedures, instruction, teacher recruitment, and job placement.
9. Keeping local directors continually informed about new developments and opportunities for vocational education at the state and national level.
10. Making recommendations to the State Director regarding requests to the State Legislature.

Regular supervisors in the various vocational fields also supervise courses in their service unit in the area schools. In fact, a large majority of the trade and industrial programs in the state are in area schools. The same is true of adult home economics programs.

Area schools are well qualified to handle the kinds of specialized training required under the Manpower Development and Training Act. They have well-established lines of communication with industry and are experienced in working with industry. Area schools also have experience in giving occupational training to youth and adults of all ages with widely varying educational and experience backgrounds.

SOME PROBLEMS

Discussion of the area schools would not be complete without including something about their shortcomings. In about 5 years, the area schools, which were primarily high schools, have become mainly post-high-school institutions. This rapid transition has created some problems in dealing with post-high-school students. Some of these problems are:

Housing. It was originally thought that most students would be commuting students, and that the area schools would not be involved with student housing. However, many students come from considerable distance and must find housing in the area school city. These students are being housed in private homes — a situation which most communities involved have found desirable because of the economic benefits to local home owners. Availability of rooms has not been a problem and, to date, no serious supervisory problems have arisen. The necessary prechecking of student residences, making house rules and regulations, and checking the rent to be charged are all questions presently being resolved more or less individually by the schools involved. Differences among the schools in the amount of responsibility accepted for supervision of student living quarters has been a subject of some concern to parents and counselors. Area school directors who advocate minimum supervision point out that most of these post-high-school students would be living away from home on their own in any case if not at the area school. The housing topic is discussed frequently at area school directors' meetings, and it is likely that more uniform policies will be forthcoming in the next few years.

Student social life. During the past several years, the courses offered in area schools have become more technical, and the schools' reputation for quality training is becoming widespread. The result has been the attraction to the schools of high-ability students who appreciate and desire social experiences in school in addition to training activities. Area school directors have sensed the need and have been adding such activities as school dances, athletic teams, and student councils. However, these efforts would be regarded as somewhat amateur by collegiate institutions that have been carrying on such activities for many years. Furthermore, the director does not have unlimited time, and it is difficult for him to delegate social assignments to teachers whose ability and willingness to handle student social affairs were not considered when they were employed.

Limited concept of vocational education. The vocational leadership function in area schools is just as important as are similar functions in other educational institutions. The fact that an area director is a qualified vocational educator does not always assure a broad concept of vocational education. Some of the area school programs have been limited too much to traditional trade courses. It is not easy to be critical of such programs, particularly when a superior job of training is being done, but efforts are being made through state leadership to broaden the area school program.

Lack of trained guidance personnel. Only 4 of the 12 area schools employ specialists in counseling. In the other schools, selection and counseling are carried on by the directors or coordinators. Time commitments often do not permit the area directors to spend adequate time in counseling. In most cases they have not had a great deal of professional course work in counseling. However, experience with the needs of industry and with students has given them considerable insight into screening students for the various courses.

The lack of counseling personnel in outstate schools has been partially compensated for by extensive cooperation with local offices of the Department of Employment Security. In five of the area schools all entering students are tested by Employment Security and are registered with it for placement upon completion of training. However, the schools do not abdicate their placement responsibility; the Employment Security help is regarded only as an added service. In most instances, Employment Security has been of considerable help to the area schools, providing perhaps the equivalent of a half-time counselor. Some difficulties have developed, however, in that the *state* office of Employment Security objects to the local offices' practice of giving the student test scores to the area schools. Where local offices test and interview, but do not give out test scores, the school directors are likely to abstain gradually from making referrals.

In summary, the area schools of Minnesota are providing high school and post-high-school vocational training needed by students, industry, and government. Although all existing facilities and operational procedures are not perfect and some areas of the state are still too distant from area schools, substantial improvement in facility expansion, curriculum progress, and operational procedures is currently being made.

These schools are meeting a training need that was not being fulfilled at the time the area school law was passed and that no other educational institution in the state is now prepared to meet. There is no evidence that area school graduates are less competent citizens because their school training has stressed occupational learning.

THE JUNIOR COLLEGE

The general aims of Minnesota junior colleges, as stated in "The Junior College in Minnesota," are preparation for advanced study, vocational education, general education, and community service.

Recent evidence indicates that the junior colleges of Minnesota are doing a satisfactory job of providing transfer courses for four-year degree programs. Students completing the transfer courses tend to do as well as or better than those who take all of their collegiate work in the degree-granting institution. But the junior colleges have not been significantly involved in post-high-school vocational-technical training. Some of the reasons are historic.

The junior college movement in Minnesota was started in 1914. But state building money has never been provided, and it was not until 1957 that any state support for maintenance of junior college students was voted by the Legislature.

Typical picture. Junior colleges have been limited to the larger, wealthier school districts, or to districts obtaining a large portion of their income from nonresidential properties, as is the case on the Iron Range. State law provides that school districts may combine to form a larger junior college district. But in no instance have communities or districts made any serious attempt to take advantage of the law and form a large junior college district. One important reason for this is that there is an economic advantage to the community in having the college located in its midst. Because of this advantage, the adjoining communities have been unwilling to tax themselves for the support of the college.

Junior colleges have typically started by "finding" space in an existing high school or elementary building "pending" the time when building funds would be available. Of the 11 junior colleges in existence in Minnesota, not one has been built on a campus separate from the high school and with collegiate-type facilities. The space "available" did not ordinarily include trade and industrial facilities.

Just as the physical facilities have been limited, so also the staff has been limited. Usually the first dean has been selected from the high school academic teaching staff, and initially has taught college subjects while serving as part-time dean. The dean often has had little training in general school administration and no training in vocational education or its concepts. His responsibilities have been similar to those of the high school principal, and have not included broad financial, construction, and program planning for the junior college. Although most of the junior colleges now have full-time deans, local boards often have not provided them with the administrative and counseling assistance required to keep pace with the growth in the pretransfer enrollments. This has made it difficult for the deans to devote the time needed for the development of new vocational-technical programs.

A lack of understanding by the deans of the needs of vocational education, especially in the trade and technical fields, has been a handicap to the vocational programs. Where attempts have been made to establish trade or technical programs, the programs have often been based on the availability of facilities, staff, and existing courses, rather than on the needs of the occupation. The occasional contacts with industry have been cursory rather than analytical in nature.

Objectives of the nontransfer courses have usually centered around providing "something for the transfer dropout" rather than around the needs of the occupation for which the training is proposed. In one technical aid program, the transfer dropouts who started the vocational courses generally dropped out of the entire program. Only a few ever completed the program. Some of the factors involved were: (1) No selectivity was exercised other than that this was a program for those who failed in preengineering. (2) Students who had engineering capability but who preferred the technical aid course were "pushed" to transfer into the preengineering program. (3) At the beginning of the program several unrelated industries were consulted, and the decision was made to train a general technician. The student, therefore, was given courses in surveying, electricity, forging, welding, woodworking, machine shop, and sheet metal, as well as courses in mathematics and liberal arts. The net result was that the student did not get enough training to be qualified in any one area, and he was not readily employable on the basis of his training. (4) Little effort was expended on placement, and no placement records were kept.

At present, none of the junior colleges offer trade and industrial or technical programs that meet the standards of the State Plan for Vocational Education. They do offer, however, some quasi-vocational programs for which they receive the state junior college student aids. These aids consist of $300 per pupil annually. This puts the State Department of Education in the curious position of providing funds for the support of substandard vocational programs which cannot be supported with regular vocational aids because they do not meet state vocational standards.

If a junior college is to qualify for student aids for a "vocational" program, its teachers must meet the academic requirements of the transfer program, including at least a master's degree. It is very difficult for the junior college to secure instructors who have trade and technical competence in addition to the degree.

Successful programs. The vocational training areas in which junior colleges have achieved some degree of success are office and distributive training. The office training programs lend themselves nicely to the junior college pattern of operation. Single-period classes are acceptable; degreed teachers are available. Office education trains for white-collar employment, which provides status for the students. Many students in the office program adapt very well to taking regular transfer courses as the general education part of their training.

On the other hand, a considerable number of students do not adapt well to the transfer classes, and some who could perform quite capably in office skills drop out because they are unwilling or unable to complete all of the collegiate requirements. An analysis of the office curriculum shows that the amount of actual practical skill and related training given in 2 years in the junior college is comparable to the amount of practical work given in 1 year in the area of vocational-technical school or in the private business school. Furthermore, in some of the junior colleges, a majority of the two-year office-training students leave to seek employment after the first year, having acquired only one-half of the skill and related training that a typical area school or private business school student would have had.

Office-training equipment in the junior colleges has generally been as good as that found in the larger comprehensive high schools. In two of the junior colleges a regular cooperative part-time office training program is being carried on successfully. For other than the cooperative program, placement data are not available; but placement is quite good, since the demand for office workers is high at nearly all advanced levels of training.

Distributive education programs in 2 of the 11 junior colleges have also been successful in terms of the success of graduates and the general reputation of the programs. In both instances the programs were organized and carried on by competent, well-trained vocational distributive coordinators.

Fairly extensive vocational evening trade extension programs are conducted in three junior college districts. Each of these districts has a qualified vocational coordinator. In two of the districts the coordinator reports directly to the superintendent with no responsibility to the dean of the junior college; in the other, the vocational coordinator reports to the dean.

Progress. There is in Minnesota a strong junior college "movement," comprised largely of educators, but with some lay support. It is the contention of this group that junior colleges should provide the bulk of the 13th and 14th years of education in Minnesota in the general categories listed previously as junior college aims.

The supporters of the movement have not looked with favor on the development of area vocational-technical schools in the state. It has been their contention that the scope of the area school training is too narrow since it limits the student to occupational training and does not make it possible for him to switch readily to the college transfer program without loss of credit or time. Furthermore, it is contended that adequate general education is not available in the area school. They believe that most of the area schools should be merged into the junior college pattern, thus making the area schools more comprehensive institutions. At the same time, they maintain that existing junior colleges should become more vocational, and thus more comprehensive, by offering more occupational training courses. Local junior colleges and area schools have been under some pressure for a number of years to work toward the implementation of this objective of increased comprehensiveness. No attempt will be made here to analyze the wisdom of this objective. If it is assumed for the moment that comprehensiveness is a desirable objective, the following actions represent "progress" toward that objective.

1. In July 1962, the administrative regulations of the State Department of Education were amended to provide for a vocational coordinator in junior colleges offering three or more vocational programs. The philosophy behind the amendment is that experience has demonstrated rather clearly that vocational programs can be successful only if they are under the direct supervision of a qualified vocational educator.

2. In Austin, the only school district in the state presently having both a junior college and an area school, the junior college started an engineering assistant training program in the fall of 1961 which utilizes the area school electronics and machine shop facilities during late afternoons. This training program, however, does not meet the standards of the state plan, and the curriculum structure is not highly regarded by the Vocational Section of the Department of Education. But, it does represent an effort on the part of a junior college to add comprehensiveness to its program.

3. The Hibbing Junior College has initiated plans for offering industrial and other vocational programs. It has hired a qualified man in an instructional capacity with the idea of using him later as a coordinator. The dean has been consulting frequently with the State Vocational Section and the Department of Employment Security regarding "demand" occupations. He has set up several meetings with industry and other groups to determine course content with intent to plan courses based on occupational needs. The dean's previous experience as a mathematics teacher in a vocational-technical school is helpful in enabling him to understand the needs of a vocational program.

The Hibbing School Board is concurrently considering the establishment of an area school instead of placing the vocational programs in the junior college structure; hence, it is not yet fully determined that the Hibbing vocational program will "enhance" the junior college movement.

4. The first modern community college in Minnesota has just been organized at Willmar. The superintendent of schools has exerted major leadership in the development of the college and will serve as its president. He was formerly a high school principal and is presently completing doctoral work at Columbia University. Since Minnesota does not have a community college law, the Willmar Community College is being organized as an area vocational-technical school and a junior college. To the general public and attending students, however, it will be known as a community college. The college is located on a campus site 3 miles outside of the city of Willmar (population 10,400), which site was formerly an Air Force Radar Base. Air Force buildings were adapted for five vocational areas, and classes started with a full enrollment in the fall of 1961. College transfer courses will be added shortly.

Application and registration procedures will be the same for both vocational and transfer students. Both will be on a quarter basis. Transfer students will pay tuition and fees based on junior college law. Vocational students will pay fees based only on area school law. Both groups will participate jointly in athletic and other college activities. Vocational students must take all of their prescribed course work in the classes designed for their occupational training. However, it is planned that they may take additional college work on a late afternoon basis if they so desire. Transfer students may make some late afternoon utilization of vocational facilities if scheduling can be worked out.

The academic dean and the vocational director will report to the president of the college. It is anticipated that at some time in the future, growth of the college will require a full-time president.

Although the experiment might be more meaningful if better buildings were available, the Willmar Community College is the first full-fledged attempt in Minnesota to combine an academic transfer program with a vocational-technical program, and it will be watched with great interest.

The four illustrations just given represent "progress" toward the assumed desirable objective of making junior colleges more comprehensive by adding vocational-technical courses and by gradually merging area vocational programs into collegiate-type institutions. Considering that this has been an objective of the junior college movement for the past 30 years, the progress seems quite minute. If junior college or community college vocational-technical programs are ever to be a significant factor in Minnesota education, several axioms, in the opinion of the writer, must be recognized.

1. The vocational-technical programs must be organized and supervised by a person who has had vocational-technical education training and experience. We have no record of any vocational-technical program being successful without that ingredient. If the supervisor is qualified and competent, matters of instructional staff, instructional equipment, curriculum, facilities, and other standards fall into place somewhat more readily.

2. The head college administrator must be broadly trained in general educational administration and have an understanding of vocational education gained from experience or course work. This is necessary so that he will understand and support vocational program budget, staff, and curriculum requests. One of the understandings that must come to college administrators is that the flexibility of vocational-technical programs has limitations. The last-quarter dentistry student cannot expect to transfer all of his credits toward a physician's degree. By the same token it is impossible for the technical electronics student to expect to transfer all of his course work to electrical engineering. Vocational-technical courses must continue to be based on occupational needs.

3. Although individual students may profit from extra courses on an extended day basis, there cannot be any wholesale mixing of vocational and transfer students in the same classes intended to serve objectives of both groups. Such classes soon lose their purpose.

4. Vocational-technical courses in a college must stand on occupational training and cannot exist for the primary purpose of accommodating the transfer dropout. Such dropouts must qualify through regular selection procedures, or the program will rapidly become a reputed "dumping ground" with a corresponding drop in enrollment, in the quality of enrollment, and in employment demand.

5. Full-time state direction within the State Department of Education is needed. This has been requested from the Legislature several times. The request will be repeated, and probably eventually will be granted. If the junior college "movement" wishes to continue to place emphasis on comprehensiveness through broadening of vocational programs, the specifications for this job will be important. If the state junior college director should be an academician, he is likely to place emphasis on the development of academic excellence with continued curtailment of vocational-technical programs. On the other hand, if he should be a person with broad administrative training and experience and with vocational understanding, he might energize the vocational-technical program in the junior colleges.

6. Provision of state or federal money for building and equipment would be one specific step toward which the junior college state director would work. Unless such money is forthcoming, it is unlikely that many of the present junior college districts will provide significantly for formal or other vocational education courses; it is unlikely that they will go deeply into debt to provide vocational junior college facilities for "area" students. We have noted that towns have been reluctant to tax themselves to build a junior college in a neighboring town, often a commercial competitor. Federal aid or new state tax sources, such as a sales tax, would seem necessary.

7. If it is desirable that area vocational schools and junior college programs be merged, it could more readily be accomplished under a new name such as "area community college." As it relates to vocational-technical training, the name "junior college" has acquired an unfavorable connotation with some educators and others in the state. The record of area schools has found favor with many lay persons, joint apprenticeship committees, labor groups, and legislators, and it is unlikely that area vocational-technical schools could ever be forced to yield their name, with its reputation for quality training, to the junior colleges. The union, if it is to occur, would have to come under a new institutional title.

The State Colleges

The five state colleges started as state normal schools — teacher-preparing institutions. Subsequently they became four-year, degree-granting institutions and now offer a master's degree program in subject areas and guidance. They serve as junior colleges for their areas, offering preprofessional and liberal arts courses that may be transferred to the University of Minnesota without loss of credit. State college participation in some phases of vocational education now appears imminent. Each of the colleges has the capacity to supply all of the replacement needs of the state for industrial arts teachers. This situation has caused state college presidents and industrial arts department heads to give thought to other outlets for their graduates. Some are planning four-year industrial technology programs leading to a B.S. degree. Others are considering two-year technical programs. Such an expansion would result in an unfortunate duplication of programs in those cities where there are both state colleges and area schools. The potential duplication of programs is of great concern to the Vocational Education Section of the Department of Education, but it does not have the jurisdictional authority or the advisory capacity to do anything about it.

THE UNIVERSITY OF MINNESOTA

The University of Minnesota has branches at Duluth and Morris. The University is involved in vocational education through its Schools of Agriculture and through its General Extension Evening Class Program. The Schools of Agriculture are remnants of a need identified many years ago for agricultural training at the secondary level on a less-than-full-year basis. The schools were established for farm boys who attended 6 months during the winter — leaving them free for summer work — to learn the "basics" of agriculture. Since that time 300 approved vocational agriculture departments have been established in public school systems throughout the state. Most rural youth now prefer to attend regular high schools on a full-year basis. Credits in the Schools of Agriculture have somewhat limited acceptance since they do not represent a full school year of attendance. The attendance at these schools has been diminishing, and it appears that this program will be phased out. Utilization of these facilities by the University is still undetermined.

Through its General Extension Evening Program, the University offers nondegree certificate courses in a variety of fields such as interior design, public administration, secretarial services, industrial relations, business administration, accounting, engineering science, and all kinds of engineering. Although these courses are "college-level," and the vocational evening school courses in Minneapolis and St. Paul are not recognized as such, many of the same faculty are utilized, often teaching much the same content in both institutions. The vocational schools have the advantage of greater flexibility, closer contact with industry through advisory committees, frequently better instructional equipment, and lower fees. The University has the advantages of prestige, college credit, and a certification program. Furthermore, the credits are acceptable if the individual later decides to try for a degree.

Retraining the Unemployed

Minnesota had some experience in retraining unemployed workers prior to the enactment of the Manpower Act. Although the Area Redevelopment Act was passed in May of 1961, funds were not provided until early in 1962. In order to start training earlier, the Minnesota "Governor's Plan for Retraining" was conceived. Under this plan the unemployed received 16 weeks of free training with tuition paid by the Iron Range Resources Commission. Those who were drawing unemployment compensation were allowed to continue to do so as long as they were not called back to work. The principal stumbling blocks were: (1) many workers had exhausted their unemployment compensation and could not afford to be in training; and (2) there was no area vocational-technical school or other good training facility in the Iron Range area, Minnesota's "distressed area." Consequently, training was conducted in area schools away from the "Range," and trainees had to move for training. As a result, only 22 persons were actually enrolled in electronics, baking, machine operation, and auto tuneup. A followup revealed that the sixteen-week period was not adequate for most persons in the occupations for which training was offered. Decisions regarding the areas in which training was given were made by the State Employment Security Research Department.

Following this state program, training under the Area Redevelopment Act began in February of 1962 at Duluth, Eveleth, and Virginia on the Iron Range. Based on earlier experience involving the moving of trainees, a new center was established at Eveleth, and an existing program at Virginia was upgraded. About 100 persons are presently training in electronics, welding, diesel mechanics, and cooking. They were selected from about 400 who requested the training, so that their quality has been high. Many have had some experience in the occupation for which they are being trained. The welding trainees, the only group far enough along for placement, have experienced no difficulty in getting jobs.

Rules and regulations for training under the Manpower Act are presently being written. It is anticipated that most training will be conducted under the auspices of existing or newly organized area vocational-technical schools. A primary objective in Minnesota will be to spend the Manpower Act money on facilities that will be available for training and retraining under regular vocational administrative structures after federal reimbursement has ended.

Teacher Training

Teacher-training institutions in all of the vocational fields must receive the approval of the Vocational Section of the State Department of Education. Home economics, office, and guidance services have given approval to several teacher-training institutions; but agriculture, distributive, and trade and industrial services limit teacher training to the University of Minnesota.

Except for trade and industry, nearly all of the teacher training takes place on campus. It is the considered opinion of trade and industry supervisors that the off-campus instruction is the most effective means for upgrading trade instructors and giving new instructors preservice training, and reimbursement policies are established accordingly.

Private Vocational Schools

Dunwoody Industrial Institute in Minneapolis, a nonprofit, endowed institution which enjoys an international reputation as a high-quality training center for men, is the most significant private vocational school in the state. Annual enrollment at Dunwoody is usually about 1,600 day students, with an additional 2,400 in evening classes. Instruction at Dunwoody is considered free: the $34 charged per four-week period is for nonteaching expenses; the actual instructional costs are covered by endowment income. Dunwoody directors and personnel have been active in the state vocational organization and have supported public vocational education. The present director of Dunwoody is a member of the State Board of Education.

Minnesota has a substantial number of private trade schools, especially in the Twin City area. The state has a private trade school law of somewhat limited effectiveness. These schools advertise heavily out of state, and most draw a majority of their students from out of state.

State Vocational Association

The Minnesota Vocational Association has been a mainstay for the vocational teachers in the state in providing meaningful state conventions, a good professional publication, and opportunities to carry on necessary public relations and legislative efforts for vocational education.

Conclusions

Some appraisals of institutions and of specific programs of vocational education have already been included in the general content of this report. A brief review of the total program is difficult because standards of measurement for a total state program are not firmly established. However, an attempt will be made to evaluate the total program on the basis of (1) meeting the training needs of the people of the state; (2) meeting the training needs of agriculture, commerce, and industry in the state; and (3) efficiency of operation.

MEETING THE NEEDS OF THE PEOPLE

Through the high school, area vocational, junior college, and university programs described, vocational training is available to most young people in the state, especially the age group 16-21. There are some geographic limitations, which additional schools would partially rectify. However, we are being forced to the conclusion that it is not economically feasible to have a comprehensive vocational program within commuting distance of every potential student in the state. Because of the high cost of facilities and instructional equipment, at some point it becomes more economical to pay the board and room of students at established institutions than to construct and operate a school.

We have two principal shortcomings. First, we have not been entirely successful in getting adequate information to the students about occupations and available training. Second, our offerings at the extremities of vocational education are lacking in breadth. It is the opinion of this writer that we need a greater variety of course offerings at the technical level. This opinion is supported by the Employment Security Research Department. We are lacking also in variety of course offerings for low-ability students. As vocational-technical programs have become more technical and more post-high-school, we have been shutting out more and more of the lower ability students — those who are becoming a state and national problem. Vocational education has not really begun to tackle this situation in Minnesota.

There has been available a considerable variety of adult vocational training programs at low cost to the participants. But keeping the adult public aware of vocational training opportunities has been one of the weakest facets of the programs. Another need is the organization of some of the individual courses into more meaningful, sequential certificate courses.

MEETING THE NEEDS OF AGRICULTURE, COMMERCE, AND INDUSTRY

As previously indicated, agricultural education, through the University, high schools, and area schools, has been extensively provided. The prominence of our state as a top producer of meat and crops and its reputation as a leader in farm management instruction give some evidence of the success of the program.

Although we have adequate numbers of office training departments, lack of state leadership has hindered their quality and contributed to their failure to be used to capacity. We have a continuing shortage of trained office workers in our state. One program that was offered in an area vocational school for training women over 45 in office skills has been successful, and we may consider other such adult programs. Distributive training is far from realizing its potential in the state, but recent meetings with trade associations, such as furniture dealers and wholesale furniture salesmen, indicate an increasing understanding and appreciation of the potential of distributive education.

Minnesota's industry is heavily oriented to the technical and highly skilled (i.e., Univac, Honeywell, Minnesota Mining), but there is no critical shortage of workers for these industries. In fact, we are constantly subject to recruitment from the West Coast and other industrial centers for our technically trained people. This is a credit to the day and evening technical and trade programs. The principal weakness is the failure to offer training in certain important skills for which the demand is small.

EFFICIENCY OF OPERATION

As indicated in this report, the University Regents, the State College Board, and the State Board of Education all administer some phases of vocational education. Within the Board of Education and within the Department of Education there are differences of opinion as to whether vocational education can be developed in the junior colleges or whether it should continue to be offered primarily in the area schools. There is continuing pressure for the junior colleges to offer more vocational training, although, for the most part, they do not have the facilities, equipment, or staff to carry on the program.

Under these circumstances, it is virtually impossible for vocational education to be organizationally efficient. To what extent it is financially efficient is exceedingly difficult to determine, but it seems reasonable to expect that it could be more efficient if there were an overall guiding agency for vocational education in the state.

XVI. Report on the System of Vocational Education in Ohio

BY BYRL R. SHOEMAKER[1]

Basic Principles Underlying the Program

In discussing the vocational education program in Ohio, we are concerned with the total program of vocational education involving agriculture, home economics, distributive education, business education, and trade and industrial education. Vocational education leadership believes in developing the best possible program within each of these areas of vocational education rather than trying to develop one general vocational education program for all areas as though they were one.

Each area of vocational education contributes to the basic or general values of education. Each area, however, has a unique contribution to make in the preparation of people for the world of work and/or worthy home membership. Leadership in vocational education is interested in discovering ways in which the various services can cooperate to provide better services to young people, without minimizing the unique contribution that each of the areas can make to the total educational program.

Those of us in public vocational education are aware of the various groups that are working in the field. Industry, private schools, business, parochial schools, and other groups all make a great contribution to the total vocational education effort. We believe, however, that the public education agencies have a continuing responsibility in the vocational education field. Industries and businesses cannot own people. They will be hesitant, therefore, to invest large amounts of money in the training of youth and adults for basic vocational education, particularly as competition increases within the various areas of our industrial economy. As companies become involved in greater competition, they tend to ask public education agencies to accept a greater responsibility for the basic vocational training of youth and adults.

Technical education, designed to prepare persons as assistants to professionals, is offered only on the post-high-school level. The leadership in vocational education believes that all other vocational courses should be offered at both the high school and the post-high-school level. It believes that such programs should be strengthened and improved, and that additional services should be extended to many young people not now being served.

Local educational leadership has supported a strong state leadership in the area of vocational education with close coordination of the various service areas under the State Director of Vocational Education. It is our belief that all functions of supervision, teacher education, and special services within the various areas of vocational education must be coordinated by the state supervisor of each service. Policies of the Division of Vocational Education encourage persons involved in the above-listed services to view themselves as a part of the team, regardless of the location of their place of employment.

The location of personnel of the various vocational services is decentralized through contracts with university centers. All teacher education personnel, as well as most of the specialized service personnel (such as coordinators in Fire Service Training and Industrial Leadership Training), are located in such centers. In a few cases, supervisory personnel serving areas of the state also are attached to university centers for purposes of providing better services to such sections of the state. The contracts with the universities state clearly the responsibilities to be assigned to each individual, the amount of reimbursement that will be made to the university center, and the fact that all work of the individuals will be under the general direction of the state supervisor of the special service, in accordance with the provisions of the Ohio State Plan for Vocational Education.

To date, there has been no conflict of interest between the universities in which personnel have been located and the leadership in the State Department of Education. The relationship between the State Department of Education and the universities has been such as to strengthen the efforts of both groups, to the benefit of the vocational education program.

---

[1] State Director of Vocational Education, Division of Vocational Education, Ohio State Department of Education.

The various vocational education services have prepared written manuals of operation at the state level in order to provide uniformity throughout the state and to enable local programs to have available the written rules and regulations that must be followed in order to establish sound programs at the local level.

Our experience has indicated that state personnel must be selected on the basis of capabilities and experience obtained from leadership of successful programs in the local communities, rather than on the basis of providing state personnel experience that will enable them to return to local community jobs as soon as they have gained acceptance and recognition.

Each of the programs of vocational education in Ohio is so organized that graduates from vocational programs are eligible to enter state universities, since they graduate from high school with first-grade diplomas. The vocational programs, however, are planned to prepare persons for entrance into certain areas of work upon graduation, and students enrolled in such programs will miss some subjects that are normally part of a college preparatory program.

As new areas of vocational education services have been encouraged by the state and federal governments through legislation and finance, such services have been assigned to the established vocational service groups rather than to new vocational groups created for them. This practice has been followed for such areas as the Practical Nurse Education Act, establishing George-Barden Title II funds; the National Defense Education Act, establishing the George-Barden Title III funds; the Ohio Worker Training Act, providing funds for retraining programs; and the national Manpower Development and Training Act of 1962.

Each vocational service at the state level is encouraged to make good use of *advisory committees* for its total vocational program and for special services within the program. As an illustration, the Trade and Industrial Education Service has the following active advisory committees: Fire Service Training; Rural Electrification Lineman Training; Law Enforcement Training; Custodial Training; and Practical Nurse Training. The local communities also are encouraged to use advisory committees to assist them with program organization and operation.

Financing

Prior to the establishment of the present state foundation program to provide state financial aid to local communities, the Division of Vocational Education reimbursed a percentage of the cost of the instructors' salaries for approved vocational programs. Because of the growth of vocational programs and the increase in salaries, the percentage of reimbursement for instructional salaries declined under this system to about 25 percent. The present state foundation program, established in 1957, makes provision for assistance for vocational programs in addition to the amount the school district would receive if it did not offer any vocational education. This is accomplished as follows. The foundation units allowed under the state foundation program for the vocational classes are in addition to the units allowed the school on the basis of student enrollment, administrators, and special service personnel. Each of the vocational services has criteria for approving the additional vocational units requested by the local communities. The amount of state funds allotted to a local community on the basis of the additional vocational unit will vary between \$2,150 and about \$6,000 depending upon the wealth of the district per pupil served. Federal vocational funds are used at the high school level to assist only the several school districts in the state that cannot qualify for assistance from the additional vocational unit allowed under the state foundation program.

The state foundation program provides for expansion of vocational education in accordance with the needs of students and communities without the limiting factor of a set amount of money voted for vocational education. A total of \$325,000 of state money still is appropriated to the Division of Vocational Education to match, in part, federal funds used to assist with the costs of teacher education, state supervision, and service to out-of-school youth and adults. An additional \$200,000 of state money is appropriated as matching money for the federal George-Barden Title III funds, which funds are used for the development of the post-high-school technical education programs.

Federal vocational education funds are used to reimburse schools for supervision of instructional programs at both the high school and adult levels. Adult extension classes in the various vocational areas are reimbursed on an hourly rate, which varies from area to area. In vocational agriculture the total cost of instruction for adults is covered through the vocational education funds. In trade and industrial education, the reimbursement is made at the rate of \$2 to \$2.50 per hour, with the local community or individuals absorbing the additional cost. No assistance is provided from the state or vocational education funds for such items as equipment, supplies, rent, and janitorial services for programs conducted within the local communities, except for practical nurse training. Practical nurse training programs for adults receive assistance from federal funds voted for practical nursing to help with the cost of instruction, equipment, and coordination.

Post-high-school technical education classes receive assistance from federal vocational education funds made available through Title VIII of the National Defense Education Act (Title III of the George-Barden Act) and matching state funds. Financial assistance is provided to two-year post-high-school technical programs on the basis of two-thirds of the cost of instruction, two-thirds of the cost of supervision, and half to two-thirds of the cost of equipment for such programs.

General Organization of Programs in Local Communities

Ohio has a large number of small school districts within the state, a condition that has handicapped the development of adequate programs of vocational education. There is not an adequate program of vocational education to serve all the youth of Ohio who desire and need vocational instruction. On the basis of the national average for the 1960-61 school year, Ohio should have 20.3 percent of its high school students enrolled in vocational programs. Only 8.9 percent of the high school students in Ohio are so enrolled.

A series of 59 community surveys, conducted by the Division of Vocational Education in cooperation with local communities, included as a part of the survey the administration of a "Vocational Planning Questionnaire" to students. This questionnaire was administered to 31,638 students in 113 schools. The results indicated that 20,985, or 66.3 percent of the students, were interested in enrolling in vocational education programs.

More definitive information on student interest can be gained from the surveys conducted during this school year 1961-62. Sixteen surveys were conducted, involving 69 schools and 18,179 students. The results indicated the following:

46.1 percent were interested in preparation for a vocation and *did not* have plans to go to college;

22.6 percent planned to go to college but also wanted some vocational preparation while in high school;

22.1 percent planned to go to college and did not want any vocational education in high school; and

8.6 percent were undecided about their future vocations or educational plans.

Students are interested in preparing for a vocation while in high school. Administrators seem to be in favor of the expansion of vocational education services to high school youth. The school district organization in Ohio seems to be the biggest drawback to the expansion of vocational education.

Trade and industrial education, business education, and cooperative office practice programs are available generally in the large cities, with adequate programs of trade and industrial education available only in the largest cities. Training in agriculture is found generally in the rural areas of the state, but it is denied to many rural youth who may live only 10 miles from an adequate program. Few city youth have any opportunity to enroll in vocational agriculture. Home economics (vocational or general) is available in all schools. Many general home economics programs, however, do not provide for the breadth of offerings desirable for an adequate home and family living program, as encouraged by vocational home economics leadership.

Experiments made several years ago with a cooperative-type program, enrolling students for trade and industrial, distributive, and business occupations within the same class under the same teacher, proved that the coordinators tended to place students in the business or sales occupations rather than in trade and industrial occupations, since jobs in the latter were the most difficult to obtain. In this same type of program, emphasis tended to be placed upon the business or distributive education phases, depending upon the orientation of the coordinator. Following these experiments, the programs were separated, and no program is approved which mixes the three goals in terms of student employment. Diversified cooperative programs for trade and industrial education placement alone have continued to grow.

Seven years ago the leadership in the Division of Vocational Education recognized that the ever-increasing number of students enrolling in the high schools would require an expanded building program. It was anticipated that the building program would cause local boards of education to ask for help in determining the areas of vocational education, if any, which should be provided for in building programs. To meet such requests, the Trade and Industrial Education Service devised a procedure for conducting a survey in local communities to determine the need for trade and industrial programs or a revision or expansion of existing programs. The survey procedure involved a study of student interest by means of a vocational planning questionnaire developed and administered under the direction of the Guidance Testing Services within the State Department, a gathering of statistical data from selected employers relating to the limited number of occupational areas included in the survey, and the gathering of opinions and reactions from the representatives of these businesses and industries regarding the areas of vocational education needed at both the high school and the adult level.

About 8 to 10 surveys per year have been conducted, and in the past several years, these surveys have been extended to include all areas of vocational education as well as trade and industrial education. Five countywide surveys were scheduled in the spring of 1962 involving all of the areas of vocational education. Briefly, the steps involved in a survey are as follows:

1. Orientation and planning meeting between the representatives of the Division of Vocational Education and the administrators of the school or schools involved in the survey.

2. Orientation of the students in those grades selected for the administration of the vocational planning questionnaire.

3. Selection of representatives of business and industry to be included in the survey.

4. Administration of the vocational planning questionnaire.

5. Letters to the persons selected inviting them to participate in a survey dinner. A form is included in the letter asking for statistical information on employment.

6. Survey dinner meeting with the following activities:

a. A report is made to the total group concerning results of the vocational planning questionnaire.

b. The total group is divided into groups of special interests (agriculture, home economics, business, distributive, and trade and industrial education).

c. In each of the group meetings, the purpose and organization of the vocational program are described, and opinions and recommendations of the representatives are requested.

7. A written report to school administrators, including recommendations, prepared by the survey personnel from the Division of Vocational Education, State Department of Education.

It has become obvious to the leadership in vocational education that the only possible means of providing the youth who live outside the large city areas with an adequate program of vocational education is through the establishment of area vocational schools. Four years ago we were able to assist Pike County in establishing the first countywide area vocational school center. The task was accomplished through the cooperative efforts of the many persons responsible for the operation of educational programs within the county.

At the time the Pike County Area school was organized, there was no provision for state assistance for the development of area schools. One school district, however, was able to provide the building and equipment. Others agreed to participate on a service charge basis, since the students remained members of their local school districts. Formerly, there had been no trade and industrial programs in the county, and only a part of the students had had access to vocational agriculture. Now all students in the county have an opportunity to enroll in vocational agriculture and/or in one of three trade areas: machine trade, electrical trade, or cosmetology. This program, including the transportation of students to the vocational center, has operated successfully. Trade and industrial education students remain at the vocational center all day and take their required academic courses at the center. Agriculture students attend the vocational school for two periods each day and return to their home high schools for their academic courses. Students go to their local schools in the morning on the regular bus routes and are then transported to the vocational center. They participate in athletics and other curricular activities at the home high school, and graduate from the home high school. A program similar to this will be initiated in Licking County next fall to serve the entire county, with the exception of the one sizable city within that county.

The obvious success of this very limited effort towards area vocational schools brought about the revision of the state law, House Bill 620, which makes it possible for two or more districts within a county to join together to establish a joint vocational school, to be administered by the county board of education. Five countywide surveys of the type mentioned earlier are scheduled in order to provide the counties with information that will help them determine what areas of vocational education should be offered if and when they organize vocational education programs under the provisions of the act. We believe that this act provides a great opportunity for the extension of services of qualified programs of vocational education to youth and adults in rural and suburban areas of our state.

Prior to the passage of the NDEA Act of 1958, those of us in vocational education in Ohio, with the assistance of the Trade and Industrial Division in the United States Office of Education, had been studying the possibilities for establishing technical education programs. The term "technical education," as used here, is limited to the type of post-high-school program that trains assistants to professional personnel in occupations dealing with design, development, and testing. Standards developed and approved by the State Board of Education require that 15 percent of the instructional time be spent on basic manipulative skills, 50 percent on special laboratory instruction and technical subjects such as mathematics and science, and 20 percent on communications instruction; the remaining 15 percent of the time may be spent in any way seen fit. Programs are required to run for 2 years with a minimum of 25 hours of class and laboratory attendance per week for 36 weeks per year. These programs operate in cooperation with the public schools under regulations which permit vocational education to be organized and operated as post-high-school preemployment training programs.

The first Ohio program of this type was initiated in Barberton 3 years ago. The first graduating class (1961) was placed without difficulty in positions at the assistant-to-the-professional level. Programs were started two years ago at Salem, Cleveland, and Lorain; in the fall of 1961, at Canton and Mansfield; and in the fall of 1962, at Springfield, Willoughby-Eastlake, Ashtabula, and Hamilton. Each of these technical education centers offers two to three technical programs, except that Willoughby-Eastlake started with four. All of the technical education centers offer mechanical technology, and all but one offer electrical technology. Chemical technology is offered in three schools, and business data processing has been included in two programs started in the fall of 1962.

These technical programs are made possible largely by National Defense Education funds and the matching $200,000 of state funds provided by Ohio.

The state and federal funds are used to assist local communities with the cost of instruction, supervision, and equipment. The local school system sponsoring the program must supply the building and much of the equipment. The students pay a fee ranging from $70 to $100 per quarter. The school districts sponsoring the programs agree to enroll students within a radius of 20 to 25 miles, and they may accept students from any place in the state.

Organization and Development Within Services

The following is a brief overview of the organization and operation of the types of vocational education programs offered in the vocational high schools, comprehensive high schools, and area vocational schools in the state. The school organization in which the vocational education program is offered will vary depending on local city or community conditions. The minimum state standards for the programs, however, are met in each type of school organization.

VOCATIONAL AGRICULTURE

Most of the vocational agriculture programs in Ohio are organized on the basis of two periods per day being assigned to the vocational agriculture instruction in grades 9-12. Provisions have been made, however, for a program providing for 1 hour per day of instruction. Students may take 2 or 3 years of vocational agriculture and then during the last years in high school also enroll in another vocational program such as trade and industrial education, distributive education, or business education.

The vocational agriculture program in Ohio is experimenting with the addition of specialized agriculture programs in such areas as landscaping, greenhouse operation, and nursery operation. There is a movement to develop land laboratories in cooperation with the high school program for purposes of demonstration projects and for use in cooperation with other science programs in the high school. Recognizing the interest in certain areas of agriculture, even in the large cities, a program in specialized areas such as landscaping and gardening has been established in Cleveland in order to enable its youth to get instruction in such areas of work. This program is approved as an additional vocational unit under the foundation program.

When a joint vocational school district is organized, vocational agriculture programs may be offered at the joint vocational school for those local school districts that do not have such programs or are operating programs with too few students. Specialized areas of vocational agriculture such as landscaping or greenhouse operation may be offered at the joint vocational school to serve all school districts in the county. It is anticipated that local districts that have strong vocational agriculture programs will retain these programs when the districts become a part of a joint vocational school district.

DISTRIBUTIVE EDUCATION

The high school program in distributive education, for which an additional vocational unit is allotted, is limited to a cooperative-type program at the senior level, in which the students spend half a day in school and half a day on the job. During the half day in school, one hour and a half is spent on instruction related to the field of distribution, and the other hour and a half on regular academic requirements. There are a growing number of distributive education programs being organized throughout the state at the high school level to serve youth interested in entering the field of distribution, but perhaps the greatest emphasis in the field of distributive education is at the adult level. Many cities throughout the state organize courses locally for their employed sales personnel. Any community in the state can request assistance in the organization and financing of such courses.

The distributive education service also employs specialized field personnel to assist communities in organizing courses in such areas as management training, waitress training, and insurance training. The specialized personnel go into a community and conduct courses for personnel in business and industry in these areas of instruction. The distributive education service also provides institutes at the university for specialized training of sales and distribution personnel in such areas as hardware store management.

The distributive education center at Ohio State was selected as a place for the development of a two-year cooperative technical program in wholesaling. Technical education can be defined rather easily in the field of trade and industrial education, but experimentation was needed to identify the technician level in the field of distribution. This program is now in its second year, and it has the full support of a broad advisory committee in the field of wholesaling. It is anticipated that this pilot program will continue on an expanded basis, and that additional programs of this type will be added to the technical centers developing throughout the state as funds are made available.

BUSINESS EDUCATION

The state leadership for business education programs is included in the Division of Vocational Education, but at present it is limited to one professional person. Additional vocational foundation units have been made available for business education in the foundation program. Business education programs that receive foundation program assistance are limited to the cooperative type programs at the senior level, similar to those for distributive education.

The cooperative program in business education is dependent upon a sound business education program operated in the 9th and 10th grades. This basic instruction is necessary to provide the students with the basic business skills by the time they are enrolled in a cooperative program at the 12th year. Trends would point, however, to the need for adjustment in the business education programs since there is a growing need for the introduction of elementary business-data-processing procedures at the high school level. Such instruction may require in-school vocational instruction in the 11th year, prior to the cooperative program at the 12th year. Instructions in such items as card punch and accounting machine operations would be included in the program.

Leadership sees clearly the place of business education in the joint vocational school program. There it will be possible to provide certain instruction at the 11th-year level that cannot be made available within each of the local schools because of the limited number of interested students and the high cost of equipment for adequately organized programs. In many cases the cooperative program can best operate at the joint vocational school center.

As indicated previously, two programs in the area of business data processing or computer programming were initiated on a post-high-school basis in the fall of 1962, one in Springfield, and the other in Willoughby-Eastlake. These programs are organized to prepare computer programmers and technicians for business and industry. They come under the leadership of the business education supervisor and are eligible for assistance under the National Defense Education Act.

VOCATIONAL HOME ECONOMICS

The state leadership in the field of vocational home economics has provided for a very flexible home economics program in regard to the number of years the students are enrolled and the number of periods per day of instruction required. For example, girls are encouraged to consider enrolling in 2 or 3 years of home economics and also in other vocational areas in order to gain skills for earning a living.

All of the areas of vocational education recognize the importance of home economics in preparation of students for home and family living. In planning for joint vocational school districts, it is anticipated that basic home economics will be retained in each of the local schools for the benefit of all girls, and that only specialized areas of home economics instruction will be offered in the joint vocational schools for a selected number of students.

A very extensive program of adult classes for homemakers is being maintained in cooperation with the public schools of the state. Financial assistance is provided from vocational education funds for approved classes offered for homemakers within any community. One very forward-looking adult program is the Family Life Program provided in several large cities, such as Toledo. One or more full-time persons are employed in each of these cities for the organization and operation of a family life program that trains leaders in skills and technical knowledge required for working with people in their natural groupings throughout the city.

TRADE AND INDUSTRIAL EDUCATION

The trade and industrial education programs at the high school level are limited to the 11th and 12th years. Sixty-one different trade areas are offered in the day trade programs in the public schools, and an additional 29 trade areas are offered in the diversified cooperative training program. Toledo has the broadest trade and industrial education program in the state, offering 21 trade areas for boys and girls.

In both the rural and the suburban areas, trade and industrial education is almost nonexistent. This is because many of these schools are too small to support in-school trade and industrial education programs and there are not enough industries and businesses sufficiently close to the school to offer job opportunities in the cooperative education area.

Experience in Ohio indicates that the need for adequate programs of trade and industrial education at the high school level is growing rather than diminishing. In view of the high dropout rate from school and the large number of young people walking the streets after graduating from a general high school program, we see no justification for denying trade and industrial education to high school youth.

As an example, only 62 students graduated from high school this spring for every 100 who entered the first grade 12 years ago. Of the 62 students graduating, about one-third will start to college, and only 12 will graduate.

Our experience, therefore, points toward the need for area vocational education schools. The joint vocational school district law (House Bill 620) provides a real means of expanding the services of trade and industrial education to more youth in the small cities and the rural and suburban areas. Perhaps the trade and industrial education program is the one most affected by the small size of schools and the lack of adequate physical facilities. The professional personnel in trade and industrial education are working diligently to gain acceptance for the joint vocational school district principle.

In general, the physical facilities for trade and industrial education in Ohio have been improving. The new schools now providing trade and industrial education programs have very adequate facilities for the programs. It is obvious, however, that continued improvement of instruction must take place if graduates of trade and industrial education programs are to be accepted into modern industries as the industries and trade are to become more technical in nature.

In order to push forward a program of improved instruction, trade achievement tests are being developed at the rate of one [illegible] year. Such tests will enable us to evaluate the achievements of the students in the trade areas in which they are enrolled at the completion of both the 11th and 12th years. To date, testing programs have been developed for machine trade, auto mechanics trade, basic electricity, basic electronics, and drafting. The testing program involves the use of an intelligence test for both verbal and nonverbal abilities and a basic mathematics test, and a trade achievement test. The achievement test itself is based on the skills, technical knowledge, and principles of mathematics and science related to the trade area which the student is studying.

This testing program is conducted in the spring of each year. The tests are graded at our Instructional Materials Laboratory, Ohio State University, through the use of IBM equipment. Norms are established for the entire state, and reports are sent back to local schools indicating the scores of each student on each section of the test. On the basis of this information, the individual schools can chart the school norms in comparison with the state norms, and the achievement of each student can be compared with the school and state norms.

Experience with these tests over the past 4 or 5 years shows that they can indicate clearly to a local school the weaknesses in its instructional program. Also, they have stimulated the local centers to improve not only their instruction but also their curricula and facilities.

Another fact brought out by the tests is that certain school systems were enrolling in vocational education courses a preponderance of students with less-than-average ability, and that such students, as a general rule, were not able to achieve in accordance with the norms of students in the state as a whole. Such studies have led to the enrollment of better students in trade programs, students who can qualify for employment upon completion of the two-year program of instruction.

We find a trend in Ohio towards increased employment in the service trades and the very highly skilled trades as the number of persons employed in the field of manufacturing decreases. As examples, we find an increased need for instructional programs for girls in health areas and in such service areas as cosmetology; and for boys, in such trade areas as electricity, electronics, drafting, and auto mechanics. There is also a movement to develop instruction in other occupations, such as pressing and dry cleaning.

Throughout the skilled trade areas, increased emphasis is being placed on quality instruction in mathematics and science as related to the trade being taught. It is our experience that many students who cannot achieve in college preparatory mathematics and science still can master the functions of mathematics and science as applied to their trade areas.

Research on the results of the machine trade achievement test indicates that students who are enrolled in 3 hours of manipulative instruction plus two periods of related instruction do better in the achievement tests than do those who are enrolled in 3 hours of manipulative instruction plus only one period of related instruction. A study of the information gained from the achievement testing program indicates that it is desirable to assign to students periods of related technical instruction separate from and in addition to the periods for shop instruction. The related technical instruction must include a study of the principles of mathematics and science related to the trade. More research, however, is needed on methods of instructing students in technical information related to their trade.

Teacher education for the trade and industrial education field provides a particular problem. It is often necessary to employ a teacher without a college background in order to secure one with the necessary skills and technical knowledge in a particular trade area. Although about 60 percent of our teachers possess baccalaureate degrees, a large majority have attained the degrees while teaching.

A strong in-service teacher education program makes this possible. A teacher employed without a college degree attends a one-week preservice instructional program and is visited every other week during the first 4 years he is on the job by a teacher educator from one of our teacher education centers for trade and industrial education. In addition to the in-service program, teacher education courses are offered in the evenings and during the summers at the university centers. The cooperating university centers in which teacher education personnel are located are Ohio State University, Kent State University, the University of Toledo, and the University of Cincinnati. Each center serves an assigned area of the state. A total of nine persons are employed on a full-time basis for teacher training in trade and industrial education.

The teacher educators are employed by the university, but a portion or all of their salaries are paid from trade and industrial education funds, and they are members of the trade and industrial education staff of the state. These teacher educators meet with the total trade and industrial education staff several times each year, and some of them are on the service policy and planning committee. Instructional materials for the individualized teacher education in-service program are provided through our Instructional Materials Laboratory.

Further information concerning the teacher education program can be gained from the Ohio Manual of Operation for Trade and Industrial Education.

The only shrinkage that has occurred in the trade and industrial education adult area is in the apprenticeship-related instruction programs. This shrinkage may be caused by the slowdown in industrial activity, by changes in the employment patterns due to technological developments, or by changes in labor-management attitudes toward the apprenticeship system. The apprenticeship program is controlled by labor and management, and the future of the program is in their hands. We anticipate, however, that the related instruction for apprentices will increase as business activity regains its proper momentum.

Adult trade extension classes are growing in number. To a large extent, we attribute the success of this program to the fine leadership personnel assigned at the local and state levels. Communities that have employed local supervisors of trade and industrial education have enjoyed a growth of services to both employed and unemployed adults. Communities that employ only teachers for selected areas of trade and industrial education do not generally develop adequate adult extension programs.

We find growth also in those areas of instruction for which we have employed specialists at the state level. Specialized personnel have been employed as follows: five persons in fire service training, including emergency rescue squad training; four persons in industrial leadership training; two persons for rural electrical lineman training; one person for a new custodial training program; and two persons for a law enforcement training program. These persons are employed as a part of the trade and industrial education staff within the state, but they are employed through university centers in order to serve better the various sections of the state. Again, these persons are employed by the university centers on contracts with the State Department of Education. The State Department of Education indicates the type of service to be performed, and the universities have cooperated to the fullest extent. The full salaries of most of the specialists are paid from trade and industrial education funds to the university centers. Travel costs are paid directly from the State Department of Education to the individual.

In the field of adult preemployment training, we have conducted for a number of years continuing practical nurse training programs. At the present time this program is provided in 14 centers throughout Ohio. In the last several years an effort has been made to provide retraining programs for unemployed persons with assistance from federal funds made available through Title I of the George-Barden Act and from certain state funds available to the Trade and Industrial Education Service, with some success. The training programs are carried out in coöperation with such agencies as the State Welfare Department, the Ohio State Employment Service, management organizations, union organizations, and others. It has been demonstrated that jobs must be available in order to plan a sound training program for unemployed adults and to place them in jobs upon completion of training. During the year 1961-62, 572 adults, selected from the unemployment rolls of the state, were enrolled in training programs.

In its 1961 session, the Legislature passed the Ohio Worker Training law requiring the establishment of a worker training committee at the state level and a worker training committee in any local community desiring to participate in funds made available through the state worker training committee for the retraining of unemployed adults. Although the total retraining program under this act is directed by the state committee, the organization and supervision of adult training programs are assigned to the Division of Vocational Education in the State Department of Education; and the funds made available under the act are assigned to the Department of Education for administration.

The Ohio Worker Training Committee has established procedures and policies for the operation of the training programs they will assist. The committee has established rates of a maximum of $5 per hour for instruction; $3 per hour for heat, light, building, and maintenance; and $2 per hour for instructional supplies. It is not intended that these funds cover the full cost of instruction, but rather that they should help a local community to meet its own obligations in retraining the unemployed. The act also provides that the vocational education services within the state will assist in bearing the cost of instruction for such retraining programs to the extent that their budgets permit.

Projects for retraining unemployed persons have been approved under the National Area Redevelopment Act for instruction in electronics at Cambridge and in machine operation at Martins Ferry. Other requests for training programs have been submitted through the Department of Labor Area Redevelopment Act regulations.

Another area of assistance provided by the Trade and Industrial Education Service of the State Department has been the Instructional Materials Laboratory, developed and maintained at Ohio State University. The purpose of the laboratory is to develop new instructional materials in vocational areas at both the high school and the adult levels. An annual budget of $20,000, plus the salaries of several professional personnel, is invested in the laboratory. In addition, sales of instructional materials from the laboratory help to maintain the reissue of the materials and to publish them in an attractive and usable form. The yearly expenditures of the laboratory for the production and publication of new materials and the rerun of existing materials total about $60,000.

The Instructional Materials Laboratory has had the full support of our local supervisors of trade and industrial education throughout the state. A number of years ago, when funds were restricted, the people throughout the state voted that we should use the limited funds for the expansion of the laboratory rather than for increasing reimbursements to the local communities.

University Branches and Community Colleges

There are no publicly supported community colleges in Ohio at the present time. The various universities have established branches in several cities, utilizing the facilities of the public schools. Such branches are operated directly by the universities, and they provide instruction in the first 2 years of basic college work. The branches do not offer any technical education programs as defined in this paper.

The last session of the Legislature passed a community college bill and a technical institute bill. The community college bill established a board, separate from the State Board of Education, to administer the program, and it made the county commissioners the legal entity for establishing community colleges. Under the provisions of the bill, the public schools have no part in the program. The Legislature provided no funds to assist in the establishment of community colleges.

The technical institute bill merely made it legal for any group of county commissioners to organize a technical program. The bill, however, did not provide for any state leadership or financial assistance.

Appraisal of the Vocational Education Program in Ohio

I would judge the following to be outstanding features of the program.

1. Strong leadership at the State Department level, both within the services and at the head of the division, and community acceptance of state leadership as an aid to program development and improvement rather than simply for inspection.

2. A close staff relationship within the various vocational services at the state and local levels and a clear division of responsibilities among the various services and personnel at the state level.

3. The development of manuals of operation to provide adequate information for local communities concerning sound program standards within the various service areas.

4. The services provided by the Vocational Education Division of the State Department to help local communities evaluate existing programs and to establish new programs.

5. The employment of specialized field service personnel to give leadership to special areas of education throughout the state and the utilization of such personnel to train a corps of part-time instructors in local communities or industries to meet local needs quickly, effectively, and economically.

6. State services in the area of instructional materials development and testing.

7. Emphasis upon the employment of leadership personnel within the local community for the development of programs, particularly in the trade and industrial education area.

8. Trends toward increased programs for high school youth through the support of public school administrators and the passage of House Bill 620.

9. An increase in the number of short courses for employed adults and homemakers.

10. The growth of post-high-school technical education programs.

11. The growth of retraining programs.

The weak features appear to be:

1. The need to extend vocational education to a larger number of youth and adults in the state.

2. The need to improve the quality of instruction in keeping with the changing needs of the industrial economy.

3. The need for the enrollment of more students who are capable of achieving a level of skill and technical knowledge that will enable them to be accepted into the highly skilled trade areas with quality companies.

4. The need of funds to make the joint vocational school district organization a reality.

5. The need to develop organized vocational programs along with other appropriate programs to serve the students who fall roughly into the 70 to 90 I.Q. range.

6. The need to improve salary schedules at the state level so that the strongest leadership in the local programs can be attracted into the State Department.

PRECEDING PAGE BLANK-NOT FILMED

Appendix to Part I

PRECEDING PAGE BLANK-NOT FILMED

Example of a Basic Classroom Unit Foundation Formula for Determining State Support of Elementary and Secondary Education in a Hypothetical State

BY STANLEY E. HECKER[1]

BASIC CLASSROOM UNITS (BCRU)

Brown School District educates 2,000 pupils (K-12) and contains considerable land area. It has one central high school (9-12), three consolidated elementary schools (K-6), one isolated one-teacher school (K-6), and one nonisolated one-teacher school (K-6). (State law and/or State School Board regulation defines "isolation" and "division factor.") The total basic classroom units are calculated as follows:

Type of School	*Membership*	*Divisor*	*BCRU*
One teacher (nonisolated)	15	30	.5
One teacher (isolated) . . .	12	—	1.0
Elementary	180	22	8.2
Elementary	500	30	16.7
Elementary	720	30	24.0
Secondary	573	30	19.1
	2,000		69.5

VOCATIONAL CLASSROOM UNITS

Brown School District is partially rural and partially urban. It has (1) sufficient pupils, (2) adequate facilities, (3) an approved program, and (4) certificated teachers in vocational agriculture, vocational home economics, and trade and industrial education. (State law and/or State School Board regulation defines 1, 2, 3, and 4 above.) State approval is granted for the following additional classroom units for vocational education:

Service	*Classroom Units*
Vocational agriculture	1.0
Vocational home economics	1.0
Trade and industrial education	1.0
	3.0

SPECIAL EDUCATION CLASSROOM UNITS

Brown School District has (1) sufficient pupils, (2) adequate facilities, (3) an approved program, and (4) certificated teachers to provide special programs for the physically and mentally handicapped. (State law and/or State School Board regulation defines 1, 2, 3, and 4 above.) State approval is granted for the following additional classroom units for these special services:

Service	*Classroom Units*
Physically handicapped	2.0
Mentally handicapped	1.0
	3.0

SUBTOTAL OF CLASSROOM UNITS

The sum of "classroom units" to this point is:

Basic classroom units	69.5
Vocational classroom units	3.0
Special education classroom units	3.0
	75.5

ADMINISTRATIVE AND SPECIAL INSTRUCTIONAL SERVICES (ASIS)

State law permits additional CRU credit for "Administrative and Special Instructional Service (ASIS)" personnel at the rate of one additional unit for each six units in the subtotal. Brown School District's entitlement is 12.6 units (75.5 divided by 6). Brown School District employs properly certificated personnel for the following approved positions:

Service	*Classroom Units*
Superintendent	1.0
Assistant superintendent	1.0
High school principal	1.0
Assistant high school principal	.5
Elementary principal	2.0
High school librarian	1.0
High school physical education	2.0
Music (instrumental and vocal)	2.0
Industrial arts	1.0
Art	1.0
Elementary librarian	1.0
	13.5

---

[1] Assistant Professor, College of Education, Michigan State University.

Since the number employed exceeds the number permitted under law, credit will be *given for only 12.6* classroom units. (Had Brown employed fewer than 12.6 *qualified* personnel for these positions, they would not have received 12.6 CRU credits.)

SUPERVISORY CLASSROOM UNITS

State law provides that a district may receive credit for a supervisory CRU for each 100 or major fraction thereof of CRU's in the subtotal. Brown's subtotal is 75.5, and therefore it receives credit for one (1.0) additional CRU. The additional CRU is for a person qualified as a general program supervisor.

SUMMARY OF EDUCATIONAL NEED

Basic classroom units	69.5
Vocational classroom units	3.0
Special education classroom units	3.0
Subtotal	75.5
ASIS classroom units	12.6
Supervisory classroom unit	1.0
Total	89.1

This completes the calculation of "educational need" as defined by State law and/or State School Board regulation. The next step is to translate this "educational need" into "financial need." (Financial need for "transportation" is dealt with separately.)

INSTRUCTIONAL SALARIES

The Foundation Program law sets up categories or "ranks" for instructional personnel based upon level of education. Each "rank" is assigned a monetary value — an allotment schedule, *not* a salary schedule. (In most cases it has been necessary to tie a statewide minimum salary for teachers to the allotment schedule.)

Table 1 shows how the 90 instructional personnel employed in Brown School District are "ranked" and how these ranks are converted to "financial need." The nine-month salary allotment totals $469,420. Additional funds are calculated for those persons and positions approved for employment beyond the nine-month school term. (Superintendent, 3 months; Assistant Superintendent, 3 months; Principal, 1 month, etc.). Total "Instructional Salary Allotment" totals $474,534. *This amount or more must be expended for the 89.1 approved classroom units.*

OTHER CURRENT EXPENSES

State law allots $1,500 per classroom unit for "other current expenses." This amount is *not earmarked* and may be used for whatever purpose the local district may choose, such as to supplement teachers' salaries, to hire additional personnel, or to expand bus system.

Brown School District's allotment for this section of the law is 89.1 times $1,500 or $133,650.

CAPITAL OUTLAY

State law allocates $500 per classroom unit for capital outlay. *These funds are earmarked and must be used:* (1) to retire existing indebtedness, (2) to retire new indebtedness, (3) for annual capital improvements, (4) for capital improvements at a future date.

Brown School District's allotment for this section of the law is 89.1 times $500 or $44,550.

TRANSPORTATION

Financial need for transportation is the only section of the Foundation Program that is not directly related to "classroom units." It is developed under a separate formula not dealt with here. Brown School District, however, has a financial need for transportation of $40,000.

SUMMARY OF FINANCIAL NEED

Instructional salaries	$474,534
Other current expenses	133,650
Capital outlay	44,550
Transportation	40,000
Total financial need	$692,734

SHARING THE COST

The State in which Brown School District is located uses the State Equalized Valuation (SEV) of property and a required local tax effort (deductible millage) to determine the local share. *The SEV of Brown District is $40,000,000 ($20,000 per pupil), and the deductible millage is 10 mills.* Brown School District's share, therefore, is $40,000,000 times 10 mills or $400,000. The state's share is the balance, calculated as follows:

Total financial need	$692,734
District's share	400,000
State's share	$292,734

Table 1

Calculation of Instructional Salary Allotment

Rank	Education Level	Allotment Schedule	Number of Personnel	9-Month Salary Allotment	Extra Months Employment	Allotment Per Month	Extra Month Allotment	Total Allotment
I	MA+30	$6,000	9	$ 54,000	6	$667	$4,002	
II	MA	5,500	30	165,000	0	611	——	
III	BA	5,000	50	250,000	2	556	1,112	
IV	—BA	4,200	0.1	420	0	467	——	
			89.1	$469,420			$5,114	$474,534

Note: In most cases it has been necessary to tie the statewide minimum salary for teachers to the allotment schedule.

AVAILABLE PUBLICATIONS

The W.E. Upjohn Institute for Employment Research
709 South Westnedge Avenue, Kalamazoo, Michigan

☐ *Education and Training for the World of Work: A Vocational Education Program for the State of Michigan.* Harold T. Smith. July, 1963. 165 pp.

☐ *Are Wages High in Detroit?* Henry C. Thole and Harold C. Taylor. July, 1963. 86 pp.

☐ *Vocational Education and Federal Policy.* Sar A. Levitan. May, 1963. 30 pp.

☐ *Detroit's Insured Unemployed and Employable Welfare Recipients: Their Characteristics, Labor Market Experience, and Attitudes.* Edward D. Wickersham. April, 1963. 56 pp.

☐ *The Financing of Extended Unemployment Benefits in the United States.* Harry Malisoff. April, 1963. 50 pp.

☐ *Death of a Newspaper: The Story of the Detroit Times.* Louis A. Ferman. April, 1963. 63 pp.

☐ *Youth Employment Act.* Sar A. Levitan. February, 1963. 21 pp.

☐ *Impact on the Economy of Michigan of Proposed Additional Diversion of Lake Michigan Water at Chicago.* Gilbert R. Gadzikowski. January, 1963. 60 pp.

☐ *Persistent Unemployment, 1957-1961.* Eva Mueller and Jay Schmiedeskamp. A Study of the Survey Research Center, The University of Michigan. December, 1962. 33 pp.

☐ *Unemployment Insurance Costs of the ABC Corporation in Michigan and Nearby States.* Eugene C. McKean. August, 1962. 64 pp.

☐ *The Labor Market and Social Security.* Proceedings of the Fourth Annual Social Security Conference, Ann Arbor, Mich., January 23 and 24, 1962. July, 1962. 168 pp.

☐ *The Michigan Economy: Prospects and Problems.* A Symposium Presented at the Economics Section, Michigan Academy of Science, Arts, and Letters, Ann Arbor, Michigan, March 23, 1962. July, 1962. 47 pp.

☐ *What the Individual Firm Can Do to Contribute to Business Stabilization.* Harold C. Taylor. July, 1962. 16 pp.

☐ *Why Kalamazoo Voted No: The Defeat of a Housing Proposal.* Donald H. Bouma, Western Michigan University. June, 1962. 32 pp.

☐ *The Insurance Character of Unemployment Insurance.* Harry Malisoff. December, 1961. 44 pp.

☐ *The Adequacy of the Benefit Amount in Unemployment Insurance.* Joseph M. Becker, S.J. May, 1961. 64 pp.

☐ *Selected Population and Housing Characteristics by Tracts in Kalamazoo: 1950 and 1960.* Samuel V. Bennett. April, 1961. 40 pp.

☐ *Census Tract Street Directory for Kalamazoo Urban Area.* Samuel V. Bennett. February, 1961. 38 pp.

☐ *Twenty-Five Years of Unemployment Insurance. An Experiment in Competitive Collectivism.* Joseph M. Becker, S.J. February, 1961. Reprinted from *Political Science Quarterly,* Volume LXXV, December, 1960, No. 4, pp. 481-99.

☐ *Introduction to Taxes and Economic Growth in Michigan. Reprint of introductory chapter of a book entitled TAXES AND ECONOMIC GROWTH IN MICHIGAN.* (Kalamazoo: The Institute, 1960.) Paul W. McCracken, The University of Michigan. 15 pp.

☐ *Management in the Scientific Age.* A Conference of the Washington Chapter, Society for Advancement of Management. January, 1961. 80 pp.

☐ *A Suggested Program for Financing Area Development in Michigan.* Harold T. Smith. December, 1960. 88 pp.

☐ *The Kalamazoo County Economy as Reflected in the Kalamazoo County Current Accounts Table for 1954.* Harold T. Smith. April, 1960. 219 pp.

☐ *The Labor Factor in Plant Location in Michigan. Reprint of Appendix Chapter A of a book entitled THE MICHIGAN ECONOMY: ITS POTENTIALS AND ITS PROBLEMS.* (Kalamazoo: The Institute, 1959.) Daniel H. Kruger, Michigan State University, pp. 255-304.

☐ *Taxation and Industrial Location in Michigan. Reprint of Appendix Chapter B of a book entitled THE MICHIGAN ECONOMY: ITS POTENTIALS AND ITS PROBLEMS* (Kalamazoo: The Institute, 1959.) Harvey E. Brazer, The University of Michigan, pp. 305-27.

☐ *Equity and Loan Capital for New and Expanding Small Business.* Harold T. Smith. November, 1959. 103 pp.

☐ *What's Ahead for Michigan? The first chapter of a book entitled THE MICHIGAN ECONOMY: ITS POTENTIALS AND ITS PROBLEMS.* (Kalamazoo: The Institute, 1959.) William Haber, Eugene C. McKean, and Harold C. Taylor. 65 pp.

☐ *Service Station Starts in Kalamazoo, 1957-1958. A Study of the Problems of Small Business.* Henry C. Thole. August, 1959. 25 pp.

☐ *Research Report on Integrated Housing in Kalamazoo.* A project of the Center for Sociological Research of Western Michigan University. July, 1959. 30 pp.

☐ *The Persistence of Small Business. A Study of Unincorporated Enterprise.* Eugene C. McKean. March, 1958. 65 pp.

☐ *Kalamazoo in 1975.* Harold C. Taylor and Samuel V. Bennett. February, 1958. 13 pp.

☐ *Government and the Unemployed. The Summaries of Two Books.* The Institute. February, 1958. 51 pp.

☐ *Shortages of Skilled Manpower. Implications for Kalamazoo Businessmen.* Henry C. Thole. January, 1958. 55 pp.

☐ *The W. E. Upjohn Institute for Community Research: A Review of the First Decade and a Preview of the Second.* The Institute. 1957. 63 pp.

☐ *The Population of Kalamazoo County, Michigan: Estimates as of July 1, 1956, and Forecasts to 1975.* Harold C. Taylor. September, 1956. 22 pp.

☐ *Prerequisites for a Guaranteed Annual Wage.* Henry C. Thole and Charles C. Gibbons. June, 1956. 12 pp.

☐ *Public Works Policies for Boom or Bust.* Harold C. Taylor. October, 1955. 8 pp.

☐ *Employment of the Older Worker. Two Papers and a Bibliography.* Clark Tibbitts, Arthur J. Noetzel, Jr., and Charles C. Gibbons. July, 1953. 24 pp.

Business Conditions in Kalamazoo. A quarterly report of the Institute issued in October, January, April, and July. Eugene C. McKean and Henry C. Thole.

Please send a sample copy ☐ * * * Please send copies as issued ☐

Copies of the above reports may be obtained without charge from the Institute. Please supply mailing information in the space below.

Name ______________________________

____

Street Address ______________________________

City and State ______________________________

The following books are available from the publishers at the prices noted:

Growth and Prosperity Without Inflation. John Philip Wernette. 1961. 142 pp. $3.75. The Ronald Press Company, 15 East 26th Street, New York 10.

Taxes and Economic Growth in Michigan. Paul W. McCracken, Editor. 1960. 167 pp. $4.75. The Institute.

The Michigan Economy: Its Potentials and Its Problems. William Haber, Eugene C. McKean, and Harold C. Taylor. 1959. 395 pp. $3.25. The Institute.

Business Action in a Changing World. Henry C. Thole and Charles C. Gibbons. 1956. 319 pp. $5.00. Public Administration Service, 1313 East 60th Street, Chicago 37.

The Dynamics of Capitalism. Correctives Toward Continuous Growth. Julius T. Wendzel. 1956. 175 pp. $3.50. Harper & Brothers, 49 East 33rd Street, New York 16.

Unemployment and Relief from the Local Government Point of View. Samuel V. Bennett. 1956. 273 pp. $5.00. Public Administration Service, 1313 East 60th Street, Chicago 37.

Public Works and Employment from the Local Government Point of View. Eugene C. McKean and Harold C. Taylor. 1955. 274 pp. $5.00. Public Administration Service, 1313 East 60th Street, Chicago 37.

Full Employment in Your Community. Samuel V. Bennett, Hazel S. Cowherd, Charles C. Gibbons, and Harold C. Taylor. 1947. 119 pp. $1.50. Public Administration Service, 1313 East 60th Street, Chicago 37.

July, 1963